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HOUSTON TX 77017



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MEMORANDUM

TO: Chris Petersen, DPO
EPA Region 6

THRU: Chris Quina, TATL
Region 6 Technical Assistance Team

FROM: Steven Cowan *SC*
Region 6 Technical Assistance Team

DATE: August 16, 1994

REF: TAT Contract Number 68-WO-0037
TDD #: T06-9405-905
PAN #: E06Z170VAA

SUBJECT: Narrative Summary
Denka Chemical Corporation,
Houston, Harris County, TX.
CERCLIS #: TXD084972777

INTRODUCTION

The Region 6 Technical Assistance Team (TAT) was tasked by the U. S. Environmental Protection Agency (EPA) to review the existing EPA Region 6 CERCLIS file for Denka Chemical Corporation so a final decision can be made by EPA as to the site's current CERCLIS status. From the file review relevant Hazard Ranking System (HRS) data was collected, and the site was found to be an active RCRA Large Quantity Generator and a Treatment/Storage/Disposal (TSD) facility. Based on the file review, the EPA will make the decision to either conduct further remedial action or to assign the classification of No Further Remedial Action Planned (NFRAP) for the site. This memorandum will briefly describe the information obtained from the file for the Denka Chemical Corporation site.

SITE HISTORY AND DESCRIPTION

The Denka Chemical Corporation site, which is located in Houston, Texas, is an active chemical manufacturing plant of maleic anhydride and fumeric acids which can lead to the formation of dioxin. Samples have been taken numerous times at the facility. The primary settling pond has been capped under RCRA closure. The facility has active RCRA involvement.

REGULATORY STATUS OF SITE

The site is a RCRA Large Quantity Generator and TSD facility. The site was discovered in 1980 through the Environmental Protection Agency (EPA) publication 600/2-8-197; "Dioxin". A Site Inspection was conducted in 1988. The facility holds a Texas Solid Waste Permit, a Wastewater Disposal Permit, and Hazardous Waste Permit. In 1985, a RCRA Part and Part B were filed. An EPA Notification of Regulated Waste Activity was filed by Denka Chemical Corporation.

RELEVANT HRS DATA

The sources at the site include several waste management units that are regulated by RCRA. Dioxins are the contaminant of concern.

Ground water may be used for drinking water within the target distance limit of the Ground Water Migration Pathway. However, no drinking water wells have been located with the 4-mile radius of the site.

Drainage from the site enter the Sims Bayou and then into Galveston Bay. Surface water is used by the City of Houston for drinking water; however, drinking water intakes have not been identified with the target distance limit of the Surface Water Migration Pathway.

Target information is not known for the Soil Exposure Pathway.

Approximately 100 individuals live within ¼ mile of the site. Sensitive environments have not been identified within the target distance limit of the Air Migration Pathway.

RCRA FACILITY ASSESSMENT EVALUATION

PRELIMINARY REVIEW, VISUAL SITE INSPECTION AND SAMPLING VISIT

Region VI, Technical Compliance Section

FACILITY'S NAME(S): Denka Chemical Corporation

EPA ID NUMBER: TXD084377777

ADDRESS: 8701 Park Place Blvd., P.O. Box 87220, Houston, Texas 77017

LOCATION: Intersection HWY 225 & Goodyear Road on Houston Ship Channel

DATE OF INSPECTION: July 20-21, 1987

DATE OF SAMPLING VISIT: August 5, 1987 SV CONDUCTED BY: A. T. Kearney

SITE DESCRIPTION: 26-acre chemical plant making Neoprene Rubber & Malic Anhydride

PREPARED BY: A. T. Kearney DATE PREPARED: August 27, 1987

REVIEWED BY: Herbert Gorrod DATE REVIEWED: 2/12/88 - 4/22/88

FACILITY STATUS: Active/Closure of LD Units CLOSURE PLAN APPROVED: April 20, 1987

ANY ON-GOING STATE/FED 264, 265, or 270 CORRECTIVE ACTION OR CERCLA ACTION:
None

DOES FACILITY HAVE A CERCLA FILE? YES ☒ NO ☐

When was the CERCLA PA/SI performed at this facility:
PA 9/83; SI 2/85

DOES FACILITY HAVE UIC WELL? YES ☐ NO ☒

TYPE OF DRINKING WATER SUPPLY WITHIN A 3-MILE RADIUS: City of Houston water supply surface water. No water wells within 2 miles. The primary groundwater source is the Evangeline Aquifer at 600-feet.

TARGET POPULATION WITHIN A 3-MILE RADIUS: 40,000 people within 2 miles. Primarily an industrialized area bordering the Houston Ship Channel. Oil refineries, petrochemical plants.

RECOMMENDATIONS: ☒ R.F.I. ☐ I.M. ☐ No Further Action under RFA

(Indicate only one unless I.M. is marked)

☒ 3004(u) ☐ 3007

Possible Enforcement Action: ☐ 3008(a) ☒ 3008(h)

B. NUMBER OF SWMI/AOC INVESTIGATED DURING THE PR/VSI: 50

1. NUMBER OF SWMI INVESTIGATED DURING THE PR/VSI: 43

<u>LIST OF SWMI</u>	<u>REGULATED BY RCRA*</u> <u>(SUBTITLE C)</u>	<u>STATUS**</u>
1) Maleic Pond-upper	Y	C
2) Process Waste Storage Areas	N	C
3) Waste Pile	N	A
4) Imhoff Pond	Y	A
5) Maleic Pond-Lower	Y	A
6) Stormwater Pond (Lake Hausenstein)	Y	A
7) Solar Pond	N	I
8) Anaerobic Pond	N	I
9) Alum Clarifiers	N	A
10) Boiler Blowdown Ponds (2)	N	I
11) Aeration Ponds (3)	Y	A
12) Skimmer Pit	N	A
13) Latex Pits (2)	N	A
14) Splitter Box	N	A
15) RCP Pit Washdown Area	N	A
16) Latex Trench System	N	A
17) Chemical Trench	N	A
18) Clean Stormwater Ditch (Areas 3 & 5)	N	A
19) Aerator Ponds Ditch	N	A
20) Monomer Plant Rail Line Ditch	N	A
21) Monomer Plant Sump	N	A
22) Solvent Storage Area Sump	N	A
23) Lift Station at Lake Hausenstein	N	A
24) Sump at Tank 402	N	A
25) Sump at Tank 413	N	I
26) Drum/Tanks Bay	N	A
27) Caustic Unloading Area	N	A
28) Tank Truck Unloading Area	N	A
29) Process Neoprene & Latex Wastes	N	A
30) Latex Pits Pad	N	A
31) HCB Cleaning Pad	N	A
32) Tank Car Loading Area	N	I
33) Coke Storage Pad	N	A
34) Tank 412-413	N	A
35) Tank 415	N	A
36) Clarifiers (2)	N	A
37) Asbestos Roll-off Bin	N	A
38) Empty Drum Storage Area	N	A
39) QC Lab Waste Drum Storage Area	N	A
40) Spent Catalyst Storage Area-Monomer	N	A
41) Spent Catalyst Storage Area-Maleic	N	A
42) Roll-off Bin-Latex Trench	N	A
43) Waste Gas Incinerator	N	A

2. AREA OF CONCERN: 7LIST OF AOC

- 1) Outside Storage Area
- 2) Battery Storage Area
- 3) Oil Spill on Building
- 4) Maleic Anhydride Sampling Station
- 5) Diesel & Gasoline Tank Storage Area
- 6) Dispensing Station for Solvents & Oils
- 7) Recovered Chloroprene Tanks (2)

C. SAMPLING VISIT

SWMU or AOC SAMPLING LOCATION	SAMPLE/MEDIA SAMPLE TYPE (GRAB, COMPOSITE)	PARAMETERS	RESULTS
G1 - SWMU #06 (Inflow pipe - 2' above W.L.)	Soil/Grab	VOA, Semi-VOA, Metals	21-2-Cyclohexen-1-yl - 14 ppm; 8 Alkanes - range 16-129 ppm; 3 Hydrocarbons-range 93-300 ppm; 6 Unknowns - range 6-200 ppm; Arsenic-5 ppm; Cobalt - 7 ppm; Chromium - 85 ppm; Magnesium - 5,700 ppm; Nickel - 43 ppm; Vanadium - 34 ppm.
G2 - SWMU #06 (Discharge pipe - 2' above W.L.)	Soil/Grab	VOA, Semi-VOA, Metals	21-2-Cyclohexen-1-yl - 14 ppm; 1,5-Cyclo Octadiene, 1,6 - Dichloro: 37 ppm; Dodecane, 4,6-Dimethyl: 39ppm; 3 unknowns - range 28-170 ppm; 12 Hydro- carbons - range 93-260 ppm; Silver - 3ppm; Arsenic - 6 ppm; Cobalt 5 ppm; Chromium - 435 ppm; Iron - 11,000 ppm; Magnesium - 2,460 ppm; Man- ganese - 86 ppm; Nickel - 83 ppm; Tin - 32 ppm; Vanadium - 44 ppm.
G3 - SWMU #05 (Bank - 1' above W.L.)	Soil/Grab	VOA, Semi-VOA, Metals	Aluminum - 25,000 ppm; Arsenic - 6 ppm; Cobalt - 85 ppm; Chromium - 49 ppm; Iron - 20,000 ppm; Magnesium - 4,020 ppm; Manganese - 80 ppm; Nickel - 16 ppm; Tin - 15 ppm; Vana- dium - 32 ppm; Ethylbenzene - 10 ppm; Xylene 14 ppm; 21-2- Cyclohexen-1-yl - 5 ppm; 1,5 Cyclo octadiene, 1,6 Dichloro - 35 ppm; Octane, 2,4,6- Trimethyl-4 - 12 ppm; Naph- thalene, 1,2,3-Trimethyl-4 - 34 ppm; Octane, 2,4,6-Trimethyl 32ppm; Naphthalene, 1,2,3-Tri- methyl-4 Propenyl (E) - 130 ppm; 8 Hydrocarbons - range 38-300 ppm; 1 Alkane - 99ppm; 5 Unknowns - range 22-110 ppm.

SWMU or AOC SAMPLING LOCATION	SAMPLE/MEDIA SAMPLE TYPE (GRAB.COMPOSITE)	PARAMETERS	RESULTS
04 Between SWMUs 4 & 31	Soil/Grab	VOA, Semi-VOA, Metals	Aluminum - 10,800 ppm; Arsenic - 8 ppm; Cadmium - 4 ppm; Cobalt - 44 ppm; Chromium - 273 ppm; Iron - 19,200 ppm; Magnesium - 2,080 ppm; Manganese - 178 ppm; Nickel - 50 ppm; Tin - 31 ppm; Vanadium - 16,000 ppm; Diethylphthalate - 27 ppm; IH Indene, Octahydro 2,2,4,4,7,7-Hexamethyl- Trans - 41 ppm; 1,2-Benzen- ediol, 4-(1,1-Dimethylethyl) - 42 ppm; 14 Alkanes - range 31-260 ppm; 1 hydrocarbon - 63 ppm; 5 Unknowns - range 36-77 ppm.
05 SWMU #38	Soil/Grab	VOA, Semi-VOA, Metals	15 Unknown Compounds - range 5-250 ppm; Arsenic - 11 ppm; Cadmium - 2 ppm; Cobalt - 4 ppm; Chromium - 45 ppm; Magnesium 13,440 ppm; Manganese - 244 ppm; Nickel - 29 ppm; Tin - 17 ppm; Vanadium - 30 ppm.
06 SWMU #03 (Adjacent to Waste Pile)	Soil/Grab	VOA, Semi-VOA, Metals	Aluminum - 9,370 ppm; Chromium - 199 ppm; Magnesium - 6,760 ppm; Manganese - 87 ppm; Nickel - 669 ppm; Vanadium - 23 ppm; 1,6 Dichloro-1,5- Cyclo octadiene - 41 ppm; Cyclododecane - 48 ppm; Phenothiazine (ACN) - 46 ppm; bis (2 Ethylhexyl) Phtholate - 39 ppm; 1,- Phenanthrenecarboxylic Acid 1,2,3,4,4A - 57 ppm; 16 Unknowns - Range 1-1,300 ppm.

SMTU or AOC SAMPLING LOCATION	SAMPLE/MEDIA SAMPLE TYPE (GRAB/COMPOSITE)	PARAMETERS	RESULTS
07 SMTU #07 (Near Cooling Tower)	Soil/Grab	VOA, Semi-VOA, Metals	Aluminum - 10,700 ppm; Arsenic - 9 ppm; Chromium - 151 ppm; Magnesium - 2,650 ppm; Manganese - 133 ppm; Nickel - 50 ppm; Selenium - 4 ppm; Vanadium - 22 ppm; bis(2-Ethylhexyl) Phthalate - 3 ppm; 1-Ethenyl-3-methy- lene cyclopentene - 3 ppm; 1-Chloro-2-Ethyl Benzene - 6 ppm; 1-Chloro-4-(1-Chloro- ethenyl) cyclohexene - 8 ppm; 1,5 Dichloro-1,5-Cyclo octadiene - 340 ppm; 2,5- Cyclohexadiene-1,4-Dione, 2,6-bis (1,1) 10 ppm; 21 unknowns - range 1-490 ppm.
08 Background (Wooded Area)	Soil/Grab	VOA, Semi-VOA, Metals	Aluminum - 8,390 ppm; Chromium - 13 ppm; Magnesium - 605 ppm; Manganese - 551 ppm; Vanadium - 10 ppm; 1-Methyl- ethyl Ester Acetic Acid - 1 ppm; 2,4-Dimethyl-2-Pentanol - 44 ppm; Tricarbonyl (N(Phenyl)- 2-Pyridylmethyl) - 1 ppm. 10 Unknown Compounds - range > 1-2.
09 Equipment Blank	Water	VOA, Semi-VOA, Metals	No significant concentra- tion.

D. NUMBER SWSU TO BE INCLUDED IN THE RFI: 20
 (Except RCRA units subject to Subpart F refer to Section E)

1. NUMBER OF SWSU AT WHICH RELEASES HAVE BEEN IDENTIFIED: 16

<u>LIST OF SWSU</u>	<u>MEDIA</u>	<u>NOTED DOCUMENTATION OF RELEASE</u>
1) Process Waste Storage Area (02)	Soil/GW	In the past, sludges, contain-erized material, and used equipment was stored. It was closed, covered, and sealed. Little is known about its size or release controls. During the VSI a thick, black oily substance was noted in water course areas. A sample was taken during the SV. The presence of organic & inorganic constituents was confirmed. Past releases through Lake Hausenstein to Sims Bayou probably occurred.
2) Waste Pile (03)	Soil/GW	Waste Latex & Synthetic rubber is piled on bareground. Stand-ing water & soil were colored orange during VSI. Sampling indicated the presence of several organic and inorganic materials.
3) Latex Trench System System (16)	Soil/GW Surface Water	An unlined, concrete trench (2'x 2'x300') carries latex waste from the neoprene plant to the Latex Pits (SWSU 13). Also, uncharacterized drippings with a pungent odor were noted during the VSI going into this unit from the Roll-off Bin (SWSU #42). The trench has no top and is known to overflow into the street and to a clean water drainage ditch that goes to the nearby Bayou.
4) Aerator Pond Ditch (19)	Soil/GW	An unlined, earthen ditch (1'x 2'x 300') carries storm-water run-off and run-off from Latex Waste Pile (03). The VSI found staining from oily materials along the ditch.

<u>LIST OF SNUM</u>	<u>MEDIA</u>	<u>NOTED DOCUMENTATION OF RELEASE</u>
5) Monomer Plant Rail Line Ditch (20)	Soil/GW	This unlined, uncovered, earthen ditch (20) (2' x 4' x 100') carries contaminated stormwater from the Monomer Plant to the Solar Pond (SNUM 7). During the VSI, oily staining was noted along the ditch sides; also, the water in the ditch was cloudy.
6) Caustic Unloading Area (27)	Soil/GW	Pre-1986, railcars unloaded caustic over the bare ground. Numerous spills of corrosive waste (D003) were reported. In 1986, drip pans were installed to carry and spill to the Skinner Pit (SNUM 12). The past releases to the soil and ultimate migration to the groundwater should be investigated.
7) Latex Pits Pad (30)	Soil/GW	A concrete, above-grade pad that is slightly sloped to drain liquids from the stored waste into the Latex Pits (SNUM 13) receives industrial solid waste from the Neoprene Finishing Plant. The pad is curbed on 2 sides. During the VSI, it was noted that releases had occurred past the unit boundary on to the soil. In addition, dry particles of waste were seen on the pad floor.
8) Heat Exchanger Bundle Cleaning Pad (31)	Soil/GW	Heat Exchanger Bundles are cleaned on this pad with a series of channels allowing drainage into the Inhoff Pond (SNUM 4). The pad is covered, but no sides, concrete, and without secondary containment. Extensive oily staining was noted in the soil between the pad and the pond. Since HEB usually contain hazardous constituents, releases have probably taken place. A sample taken in this area indicated the presence of hazardous constituents, both organic and inorganic.

<u>LIST OF SWMI</u>	<u>MEDIA</u>	<u>NOTED DOCUMENTATION OF RELEASE</u>
9) Tank Car Loading Area (32)	Soil/GW	In the past, tank cars were washed out without control of the waste wash which had cleaning residues and oily tank bottoms, and drained to the bare soil. Staining noted during the VSI indicates a high probability of soil and groundwater contamination.
10) Tanks 412-413 (34)	Soil/GW	Two above ground, open-top tanks are carbon steel with internal liner. Each has a capacity of 750,000 gallons and stores aqueous monomer waste streams and polymer sludge before transfer to the Aeration Ponds (SWMI 11). Each tank has a shut-off pump and overflow manual controls. The units have a history of spillage of caustic material; also, during the VSI a valve was being repaired which allowed a waste stream of several gallons/minute to flow onto the ground. Contamination has taken place.
11) Empty Drum Storage Area (38)	Soil/GW	Unit is designated place for storage of empty product drums; however, partially filled drums are also set on this site. Unit has no paving (only bare ground), no containment, windbreak, or roof. The VSI showed both oily staining and soil discoloration. A sample taken and analyzed indicated the presence of organic and inorganic contaminants.
12) QC Lab Waste Drum Storage Area (39)	Soil/GW	Drums, containing lab reagents and spent solvents, are set on pallets inside the QC Laboratory. The floor was concrete, but no curbing. Drainage went to a clean storm water sewer. During the VSI, some drums were leaking and others had no lids. Surface staining indicated the probability of a hazardous release.

<u>LIST OF SWMUs</u>	<u>MEDIA</u>	<u>NOTED DOCUMENTATION OF RELEASE</u>
13) Latex Trench Roll-off Bin (42)	Soil/GW	Since the 1970's a 25-cubic yard roll-off Bin (42) Trench (SWMU 16). A wet, aromatic is sprayed into the uncovered and unlined bin. Liquids dripped from the bin into the trench. Also, the area was covered in residue. There is a high potential for releases in various media. SWMU's 16 and 42 should be examined together.
14) Outside Storage Area (AOC "A")	Soil/GW	On the ground outside the warehouse, solvent product drums are stored. During the VSI, most were upright on pallets, but some were overturned. The area is heavily stained with an oily substance. The presence of hazardous materials and the extent of contamination should be established.
15) Fuel Tank Storage Area (AOC "E")	Soil/GW	Work vehicles are filled with diesel or gasoline from tanks with no spill protection, i.e., pads or drip pans. The ground was heavily stained from past spills.
16) Recovered Chloroprene Tanks (AOC "G")	Soil/GW	Two, active, non-regulated, recovered chloroprene storage tanks sit above ground within a diked concrete pad. Significant spillage was noted in the side-diked pad area. The integrity of the pad is unknown, nor is the extent of probable contamination.

2. NUMBER OF SWMU AT WHICH A RELEASE IS HIGHLY POSSIBLE: 4

<u>LIST OF SWMU</u>	<u>MEDIA</u>	<u>RATIONALE</u>
1) Two Latex Pits (13)	Soil/GW	Unlined, concrete, open-topped pits receive and coagulate latex waste using calcium chloride. There are no overtopping controls. Staining indicates possible release of hazardous constituents.

<u>LIST OF SWMU</u>	<u>MEDIA</u>	<u>RATIONALE</u>
2) RCP Pit Washdown Area (15)	Soil/GW	Although no releases have been documented, the VSI indicated that overflows probably occurred in the past. The unit is an unlined, concrete, uncovered, sump-like tank that holds washdown and hazardous waste spills from the RCP tanks.
3) Clean Storm Water Drainage Ditch (18)	Soil/GW	An unlined, below-grade, concrete ditch collects and directs run-off along the Neoprene Finishing Plant. Heavy staining along the margins indicates possible contamination of the subsurface.
4) Processed Neoprene and Latex Wastes (29)	Soil/GW	Although there have been no documented or observed releases, the wastes managed are the same as at the waste pile (SWMU 3) which was sampled. Over 10 known and several unknown organics and four inorganics were detected in SWMU 23. Therefore, it is likely that the same constituents are present in this SWMU and should be investigated.

3. NUMBER OF SWMU WHERE A DETERMINATION OF RELEASE CAN NOT BE MADE DUE TO LACK OF INFORMATION: 0

E. NUMBER OF SWMU FOR WHICH AND RFI IS NOT RECOMMENDED: 21

<u>LIST OF SWMU</u>	<u>RATIONALE</u>
1) Solar Pond (07)	Inactive, non-regulated surface impoundment that originally held non-hazardous alum sludge. Has a clay bottom and is diked. Recorded some overflows into surface water pre-1979. No hazardous releases.
2) Anaerobic Pond (08)	Non-hazardous sludge from aeration lagoons (SWMU 11) was disposed from 1963-75 in this non-regulated surface impoundment. The pond has a clay bottom and has diking. No releases have been documented nor observed during the VSI.

LIST OF SWMURATIONALE

- 3) Alum Clarifiers (09)
250,000 gallon, active, non-regulated, concrete surface impoundment is used to partially dewater alum sludge and to coagulate suspended solids from wastewater. Adequate freeboard is maintained. The pit, also, has a rubber liner. There is no recorded history of releases.
- 4) Boiler Blowdown Ponds (10)
The two boiler blowdown ponds are inactive, non-regulated earthen surface impoundments with an in-situ clay infiltration barrier. From 1963 to early 1970's the ponds received boiler blowdown water produced during steam generation. The wastewater probably had no hazardous constituents. They now hold rainwater. The VSI indicated no releases; no past releases documented.
- 5) Skimmer Pit (12)
Neoprene-monomer process hazardous wastewater is collected in this concrete pit. It is below grade and partially covered. Pumps control both inlet and outlet. Although the VSI noted a slight erosion of the concrete and some staining around the pumps, the unit has no history of past releases. Intermittent use precludes the probability of current releases.
- 6) Splitter Box (14)
In 1979, this below grade, open-topped concrete, sump/tank was installed to separate "clean" and "dirty" water flows. The clean goes into Sims Bayou through an NPDES outlet. Dirty water goes into Lake Hausenstein (SWMU 5). Pumps, an internal baffle system, and manual controls regulate the flow. There were no visible evidences of releases nor documented past releases.
- 7) Chemical Trench (17)
Built in 1970, this unlined, concrete trench (3'x 2'x 100') carries hazardous wastewater from the Monomer Production Area to the Skimmer Pit (SWMU 12). The trench is covered by a metal plate and is controlled by valves. The unit is used intermittently for its primary purpose, but occasionally is used in the storm sewer system. There is no documented or observable evidence of releases.

LIST OF SUMURATIONALE

8) Monomer Plant Sump

Observable or documented releases have not been noted in this concrete sump that collects spillage and run-off from the Monomer Plant. The unit is open-topped, unlined, and 2-foot curbing.

9) Solvent Storage Area Sump (22)

Potential spillage of oil, kerosene, and solvents are collected in this concrete sump before emptying into the Skinner Pit (SUMU 12). The area is paved, curbed, and sloped toward the sump. There was no present or past evidence of release.

10) Lake Hausenstein Lift Station (23)

Run-off from process areas passes through the unlined concrete lift station into Lake Hausenstein (SUMU 6). The concrete was observed to be slightly eroded during the VSI, but no release indications were seen.

11) Tank 402 Sump (24)

Wastewater from the Maleic Production Plant containing some hazardous material is handled in this sump. It is concrete, unlined, topped by a grate, and extending 6-inches above ground. The VSI found no staining or damage to the concrete. No past releases have been documented.

12) Sump at Tank 413 (25)

Although presently inactive, the unit originally managed wastes that were considered hazardous. It is a below grade, concrete box with a slightly eroded surface. However, no releases have been noted.

13) Drum/Tanks Bay (26)

Barrels of product and a variety of chemicals, some considered hazardous, are stored on a paved pad that slopes toward this small sump. No stains or indications of spillage were reported during the VSI. No documented releases were discovered in the PR.

14) Tank Truck Unloading Pads (28)

These concrete pads that are curbed and sloped to flow into sump like drains are used for tank truck parking. Any spillage is controlled by the units construction. There are no documented releases nor evidence of standing waste, staining, or residues.

LIST OF SWMURATIONALE

15) Coke Storage Pad (33)

This concrete pad is used for 25-cubic yard, roll-off bins used to hold non-hazardous waste coke and assorted solid trash. The pad is reinforced, curbed on 3-sides, and sloped to a drain. During the VSI, some of the trash was lying on the pad, and there was some slight staining. However, the likelihood of a release of hazardous constituents is negligible. Historically, no releases have been reported.

16) Tank 415 (35)

This carbon steel, open top, above ground tank holds 40,000 gallons of nonhazardous sludge from the Alum Clarifiers (SWMU 9). In addition, the tank is designed with level and flow control systems. There have been no documented releases.

17) Clarifiers (36)

Units are used to clarify sludge out of treated effluent from the Aeration Ponds (SWMU 11). The liquid is discharged to surface water system through the NPDES outfall. Solids are put back in the Aeration Pond. The clarifiers are circular, concrete tanks with overflow controls. There were no visible signs of overflow or other release during the VSI. No past releases are evidenced.

18) Asbestos Roll-Off Bin (37)

Asbestos waste is bagged and placed in a 25-cubic yard, unlined roll-off bin before off-site burial or destruction. The area is "yellow" flagged as a warning. No release was documented or observed.

19) Spent Catalyst Storage Area-Monomer (40)

Spent solvents and catalysts are temporarily stored in drums and/or buckets. The area is paved and drains to the Skimmer Pit (SWMU 12). Pallets are used, but there is no secondary containment. No releases were documented or observed during this VSI.

20) Spent Catalyst Storage Area-Maleic (41)

Spent catalysts are temporarily stored in 55-gallon drums for disposal or recycling. Drums are set on pallets inside the Maleic Warehouse. No releases have occurred.

LIST OF SUMURATIONALE

21) Waste Gas Incinerator
(43)

Although not RCRA regulated, this incinerator, which burns off gas from the production of maleic anhydride, is regulated by TACB. The destruction and removal efficiency is 97%; therefore, there is little possibility of releases. None have been documented historically.

F. SUPPLEMENTAL INFORMATION ON RCRA REGULATED UNITS: 5
(Describe any problems identified or suspected from regulated units including identified releases to groundwater)

LIST OF SUMUCONCERNS

1) Maleic Pond-Upper

This unit was closed, covered, and capped in 1981. It previously, equalized an aqueous waste stream from the Maleic Anhydride Plant. Included were hazardous constituents, both organic and inorganic. Since the pond was closed with wastes left in place, without being sampled, the pond could continue to contribute to the groundwater contamination reported from down gradient groundwater monitoring wells.

2) Imhoff Pond (04)

An active surface impoundment holds 250,000 gallons of wastewater from the Maleic Anhydride Plant. Hazardous constituents are present. The unit has a recompacted clay bottom, a dike system, and is hydraulically connected to the Lower Maleic Pond (SUMU 5). During the VSI, the dike was stained and severely eroded, volatilization was observed, and an oily sheen was seen on the pond's surface. A sample was taken adjacent to this pond. Several organics, both known and unknown, were identified. In addition, several inorganics including arsenic and chromium were detected. These are in addition to benzene and toluene found in monitoring wells down gradient from the units.

LIST OF SMMUCONCERNS

3) Maleic Pond-Lower (5)

Hydraulically connected to the Imhoff Pond (SMMU 04), this pond handles similar wastes and should carry hazardous constituents. During the VSI, staining was noted on the bank of the pond, and gas bubbles were escaping from the bottom sediment at several locations. A sample taken one inch above the water line confirmed the presence of significant inorganic and organic constituents.

4) Storm Water Pond
(Lake Hausenstein) (05)

Since 1979, minor amounts of hazardous material, coming primarily from contaminated rainwater, is held in this large surface impoundment. The unit has a re-compacted clay bottom and is diked to prevent overflow. There have been no documented releases, other than the benzene and toluene found in down gradient groundwater monitoring wells. However, during the SV, two samples were taken about two feet above the water level in spots of indicated staining. The results showed several organics, including hydrocarbons, and several inorganics.

5) Aeration Ponds (11)

Three basins were constructed in 1967, in natural clay with a recompactd clay bottom and adequate banking. Process and storm wastewater passes through the mechanical aerators before discharge into the clarifiers (SMMU 35) and then to the RPOES discharge outfall. It is not known if the wastewater currently processed contains hazardous constituents. During the VSI, the dikes were exposed to wave erosion and staining was observed along the margin of the unit.

II. FINDINGS

A. RECOMMENDATIONS

CONTRACTOR:

- 1) Contractor recommended RCRA Facility Investigations on 22 SMMUs and 5 Areas of Concern. The SMMUs are 01 through 06, 13 through 16, 18 through 20, 27, 29 through 32, 34, 36, 39, and 42. The Areas of Concern are A, C, D, E, and G.

- 2) Batteries stored in Area of Concern "B" should be moved to an alternate storage area that is properly paved and curbed to control releases of battery acid.
- 3) Drip pans should be utilized at the Solvent and Oil Dispensing Station, Area of Concern "F", to prevent the release of contaminants to the soil.

EPA:

- 1) The EPA concurs with the Contractor that an RFI be conducted as listed in II.A.1 (above except for the following: SWMU's 01, 04, 05, 06, and 14. Areas of Concern - C and D.
- 2) SWMUs 01, 04, 05, and 06 are RCRA regulated units and will be evaluated on that basis. Also, a request for closure has been filed on each; the contamination discovered during sampling should be addressed at the time. Hazardous Wastes are discussed in I. C. Samples 1-3.
- 3) SWMU 14, Splitter Box, is not recommended for an RFI because the only media likely to be affected is the surface water in Sims Bayou and that is regulated by an NPDES discharge outfall. To simplify and eliminate the possibility of discharging contaminated water into the bayou, it is recommended that all water, "clean" or "dirty" go into Lake Hausenstein (SWMU 06). Thus the need for the Splitter Box would be eliminated.
- 4) Areas of Concern C and D do not fit the definition of an RFI in that both appear to involve one-time releases to the soil. That contamination took place in each case was obvious due to the pooling of oil and maleic waste, respectively, on the ground. Both areas should be cleaned up and the nature of the spill determined.

8. ADDITIONAL COMMENTS

- 1) Several SWMUs both regulated and non-regulated, appear to be contaminated with volatile material (hydrocarbons, solvents, etc.) that could represent potential releases to the air. Among them are SWMUs 02-06, 11-13, 15, 18-20, 22, 30-32, 34, 38, and 42, plus all Areas of Concern except "B". This is supported by strong odor noted from SWMU 12, and the detection of escaping gas bubbles from several locations in SWMU 5. Of course, the potential air contamination from any one unit is slight when compared to the releases from the processing units.
- 2) RCRA-regulated units 04, 05, 06, and 11 have closure permits pending with TWC. In each case, the owner/operator hopes to demonstrate that the pond's materials do not meet the definitions of hazardous waste. Upon approval by the TWC, each unit will be restored to non-hazardous wastewater treatment service after closure has been completed.

- 3) The differential handling of "clean" versus "dirty" water is difficult because the segregation seems to be made at the Splitter Box (SUMP 14) and is based on human decision and determined by a manual control. The RFA on SWMUs 07, 16, 18-19, 29-30, 32, 38-39 and 42 discusses the possibility of contaminated wastewater being discharged directly into the nearby surface water system. The problem could be eliminated if the use of the Splitter Box were discontinued so that all waters would go into one of the RCRA-regulated ponds before discharge through a NPDES outfall into Sims Bayou.
- 4) Past Groundwater Monitoring has given contradictory results. Early in the program, downgradient monitoring wells disclosed the presence of benzene and toluene in the first aquifer but could not identify the unit from which the contamination came. Later, the same wells had no contaminants. This confusion should be resolved before any permits for closure are granted.

CONCUR: Lydia M. Borda Clista DATE: 2/1/86

RECEIVED

File III A

TWC Reg. No. 31052

AUG 4 1986

TEXAS WATER COMMISSION
Solid Waste Compliance Monitoring Inspection Report

C.O. Use Only

TWC Dist. 7

FIELD OPERATIONS

INSPECTION COVER SHEET

08-86 LL5

EPA ID No. TXD084 222 777 COMMERCIAL WASTE Facility GOVT. Facility

NAME OF COMPANY Denba Chemical Corporation

MAILING ADDRESS P O Box 87220, Houston TX 77017 Tel 713-8821

SITE LOCATION 8701 Park Place Blvd, Houston Tel. same

COUNTY Harris TYPE OF INDUSTRY mfg neoprene rubber and water emulsions

GENERATOR CLASSIFICATION: Industrial ☒ Municipal ☐

Part A Application submitted to the State? Yes ☒ No ☐ To EPA? Yes ☒ No ☐
Affidavit of Exclusion submitted to the State? Yes ☐ No ☒
Was a written exclusion granted by TWC? Yes ☐ No ☒ If yes, Date _____
Will this facility require a permit? Yes ☒ No ☐

CURRENT WASTE MANAGEMENT (Haz.--"H", Class I NonHaz.--"NH", Class II--"II", Class III--"III")

Generator H, NH Treatment H Storage H, NH Disposal H Transporter _____

HW Exemptions(check): 90-Day Storage _____ Other _____

*SQG _____: Total HW Generation Per Month: <100 kg. _____ 100-1000 kg. _____

H W Facilities (circle appropriate codes): C T SI WP LT LF I TT TR WDW O

N H Facilities (circle appropriate codes): C T SI WP LT LF I TT TR WDW O

Anomalies in the above information will be addressed by: (a) Enforcement in progress _____
(b) Central Office _____, (c) District Office _____, (d) Owner/Operator _____

Type of Inspection (circle): EV EB EC CL GW SA CD FO OT FE SQ SW

Inspector's Name and Title Clarene E. Johnson

Inspection Participants Robert Hinchman, Alfio Besozzi

Date(s) of Inspection 6/20/86, 6/25/86, 7/10/86

Approved: [Signature] District Manager Signed: Clarene E. Johnson Inspector Date 7/29/86

* SQG- Small quantity generator, <1000 kg. of hazardous waste per month.

TEXAS WATER COMMISSION
Solid Waste Inspection Report
CONTENTS SHEETCOMPANY NAME Durba Chemical Corp.

- ☒ 1. Code Sheet (0814)
- ☒ 2. Inspection Cover Sheet
- ☐ 3. Special Inspection Cover Sheet (HB.2358)
- ☐ 4. Generators Checklist
- ☐ 5. Small Quantity Generator Checklist
- ☐ 6. General Facilities Checklist
- ☐ *7. Component Facility Checklists
- ☐ A. Containers (C)
 - ☐ B. Tanks (T)
 - ☐ C. Surface Impoundments (SI)
 - ☐ D. Waste Piles (WP)
 - ☐ E. Land Treatment (LT)
 - ☐ F. Landfills (LF)
 - ☐ G. Incinerators (I)
 - ☐ H. Thermal Treatment (TT)
 - ☐ I. Chemical, Physical, or Biological Treatment (TR)
 - ☐ J. Other (O)
- ☐ 8. Closure and Post-Closure Checklist ☐ Closure-In-Progress Checklist
- ☐ 9. Groundwater Monitoring Checklist
- ☐ 10. Notice of Violation (NOV) Letter
- ☒ 11. Interoffice Memorandum (IOM)
- ☐ 12. Registration
- ☐ 13. Maps, Plans, Sketches
- ☐ 14. Photographs/Slides
- ☒ 15. Other (describe) data sheets

* If a required Checklist is omitted, explain: _____

Texas Water Commission

INTEROFFICE MEMORANDUM

TO : Luis Campos, Hazardous and Solid Waste DATE: July 31, 1986
Liaison, Field Operations Division

THRU :

FROM : Clarence E. Johnson, Field Representative,
Southeast Region, Deer Park Office

SUBJECT: Denka Chemical Corporation, Generator #31052

Introduction

Denka Chemical Corporation is currently under enforcement dating back to an enforcement referral submitted by District 7 on October 1, 1984.

Denka Chemical Corporation manufactures maleic acid and maleic anhydride. The wastewater from these plants enters the maleic pond, Imhoff pond, and stormwater pond. The Texas Water Commission believes that these wastewaters are hazardous because of pH. This wastewater is pumped from the maleic pond to the activated sludge basin, where it is introduced separately in a basin adjacent to the aerators.

Inspections were made on June 20, 1986 with Dr. Alfio Besozzi; June 25, 1986 with Mr. Robert Hinckson; and July 10, 1986 with Mr. Robert Hinckson.

Findings

The effluent of the maleic pond was sampled at a sample point located on the pipeline just outside the activated sludge control room. The following data was obtained:

	SW12305	SW03314	SW12344
Date	6/20/86	6/25/86	7/10/86
Field pH	2.03	2.12	1.92
Lab pH	2.05	2.04	2.20
COD mg/l	22,800	7696	3043
TOC mg/l	2923	1974	3603
Chlorides "	1231	564	263
conductivity	8204	6358	4869
T-alk mg/l	<1		
Sulfate "	42	55	
NO ₃ NO ₂	0.30	95.3	
T-PO ₄	5.47	3.60	

Luis Campos
Page 2
July 31, 1986

Recommendations

The data indicates that the pH of the effluent of the maleic pond is less than pH 2 or just over pH 2. The maleic pond has to be below pH 2 at least part of the time. The low pH is due to maleic acid and not to strong mineral acids as they are not present in sufficient quantity.

Signed: Clarence E Johnson

Approved: Tom Kamm

TK/CEJ/ah

FIGURE 1
LOCATION OF HAZARDOUS WASTE
STORAGE AND HANDLING FACILITIES

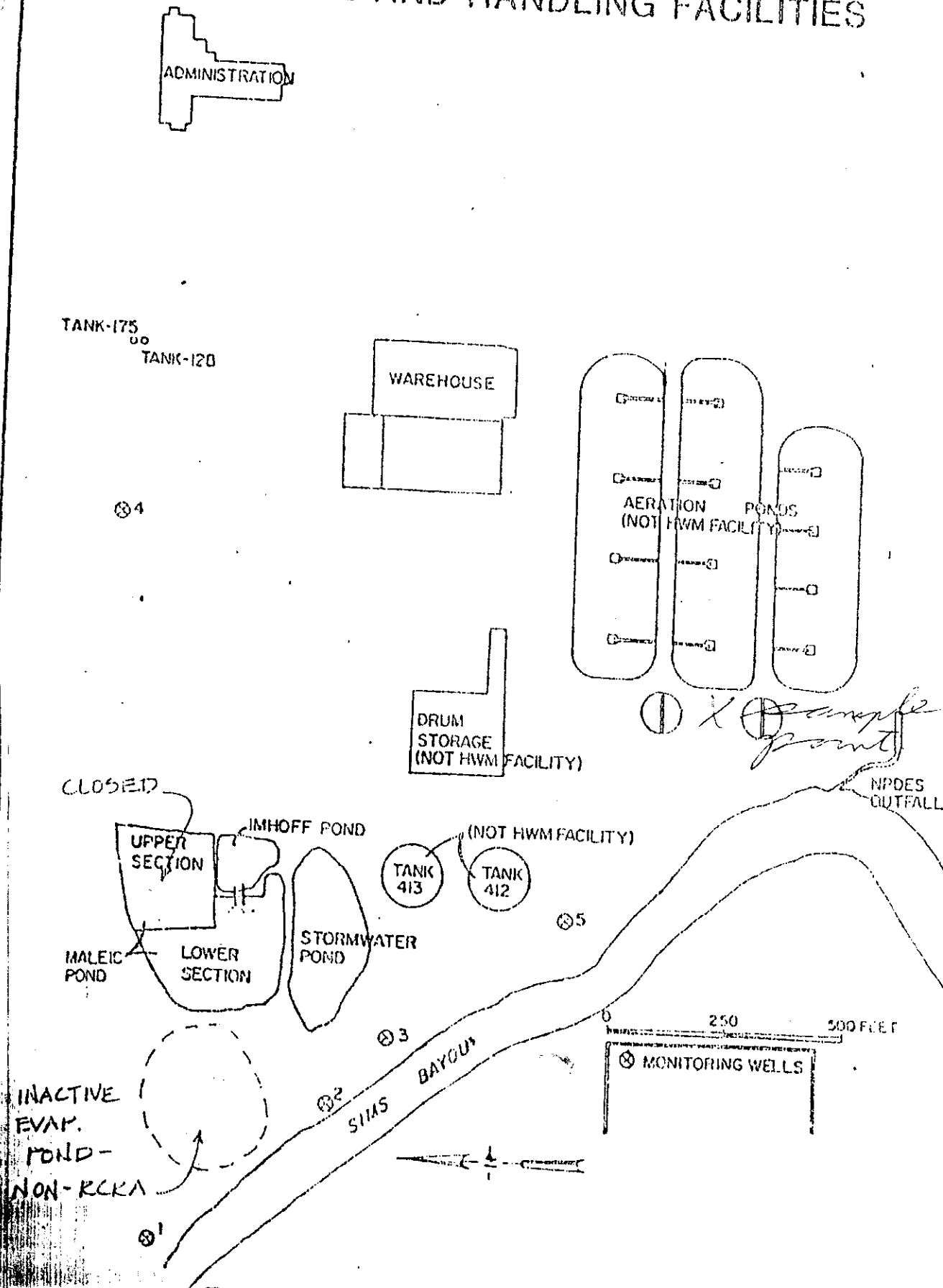
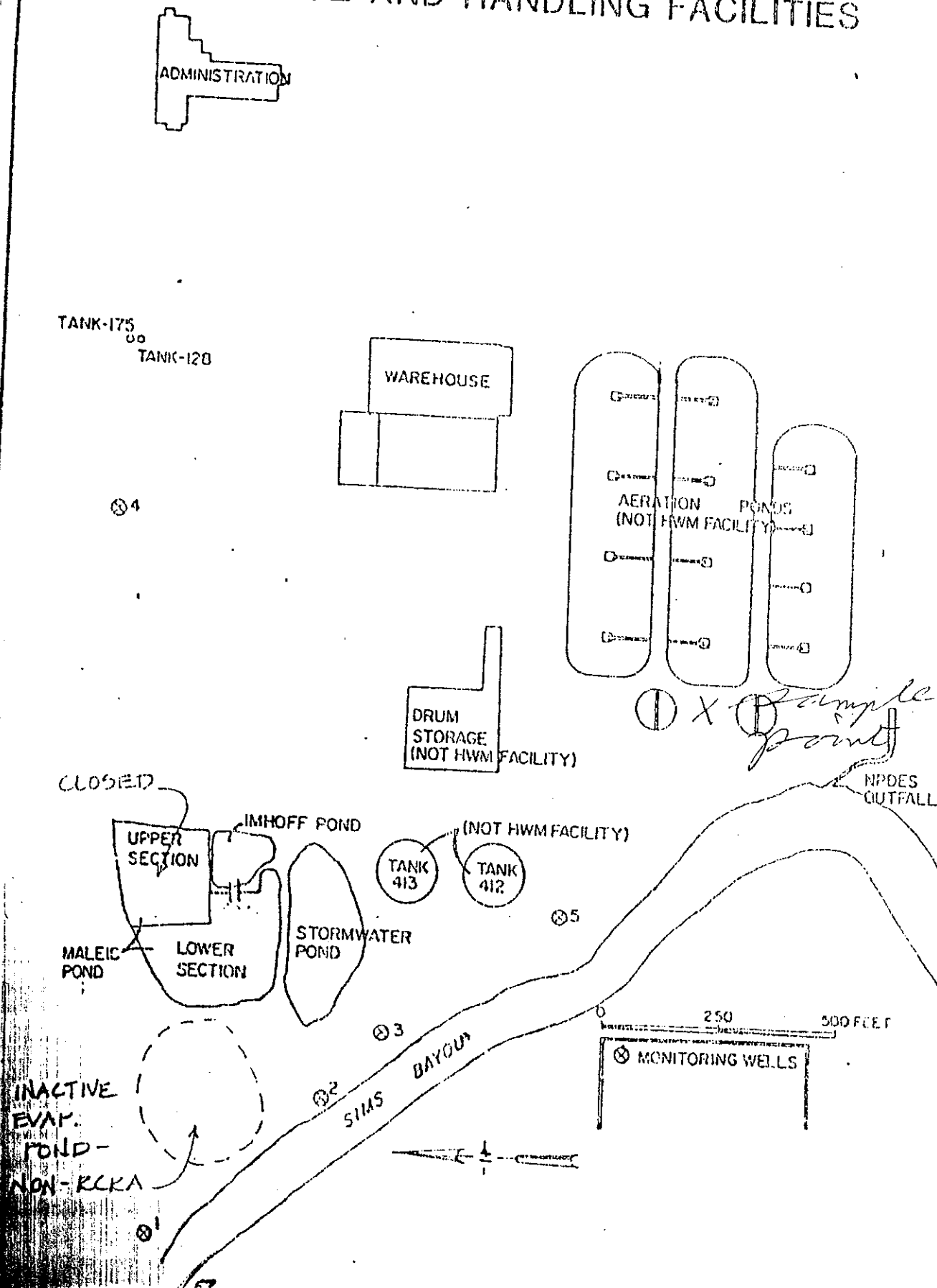


FIGURE 1
LOCATION OF HAZARDOUS WASTE
STORAGE AND HANDLING FACILITIES



SWR 31052

December 14, 1984

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DEC 17 '84

ENFORCEMENT AND
FIELD OPERATIONS

Mr. Paul Lewis
TEXAS DEPARTMENT OF WATER RESOURCES
P. O. Box 13087, Capitol Station
Austin, Texas 78711

Dear Mr. Lewis:

Enclosed you will find the latest quarterly data from the Denka Chemical Corporation groundwater monitoring program. As we discussed during our last meeting, the following analyses were run on the samples: benzene, toluene, pH, TOC, TOX, and specific conductance. As you will note by the analyses, all parameters are in line with previous analyses.

Should you require additional information, please do not hesitate to contact me.

Very truly yours,

Robert E. Hinkson
Manager of Quality Assurance

bf
Enclosure

DENKA CHEMICAL CORPORATION

Water Level Readings

Well Number	Reading in Feet Above MSL on 9/7/84	Reading in Feet Above MSL on 11/8/84
1	5.50	7.60
2	8.69	9.89
3	16.38	17.28
4	16.62	18.00
5a	3.05	3.90
21	4.40	5.30
22	3.87	5.32

LAB ANALYSIS REPORT

CLIENT NAME: GEO-ASSOCIATES
ADDRESS: 10700 CORPORATE DRIVE, SUIT 106
HOUSTON, TX 77477

REPORT DATE: 11/30/84

ATTENTION: WAYNE S. POLLARD

NUS CLIENT NO: 721501
NUS SAMPLE NO: 24110510
VENDOR NO: 05891400
WORK ORDER NO: 55690
DATE RECEIVED: 11/09/84

SAMPLE IDENTIFICATION: WELL 1 (DENKA)

11/09

TEST	DETERMINATION	RESULTS	UNITS
OV03	Benzene	< 10	ug/l
OV25	Toluene	< 10	ug/l
W310	RCRA GROUNDWATER-CONTAMINATION		
W100	Carbon, Total Organic (TOC)	22	mg/l
W315	Halogens, Total Organic (TOX)	890	ug/l
W490	pH	6.7	
W700	Specific Conductance @ 25C	6400	umhos/cm
W130	Chloride (Cl)	2300	mg/l

COMMENTS:

Reviewed and Approved by: DM



A Halliburton Company



Laboratory Service Division
900 Gemini Avenue
Houston, TX 77058

900 Gemini Avenue
Houston, TX 77058

713 - 488-1810

LAB ANALYSIS REPORT

CLIENT NAME: GEO-ASSOCIATES
ADDRESS: 10700 CORPORATE DRIVE, SUIT 106
HOUSTON, TX 77477

REPORT DATE: 11/30/84

ATTENTION: WAYNE S. POLLARD

MUS CLIENT NO: 721501
MUS SAMPLE NO: 24110511
VENDOR NO: 05891400
WORK ORDER NO: 55650
DATE RECEIVED: 11/09/84

SAMPLE IDENTIFICATION: WELL 2 (DENWA)

11/09

TEST	DETERMINATION	RESULTS	UNITS
OV03	Benzene	71	ug/l
OV25	Toluene	110	ug/l
W310	RCRA GROUNDWATER-CONTAMINATION		
W100	Carbon, Total Organic (TOC)	30	mg/l
W315	Halogens, Total Organic (TOX)	1000	ug/l
W490	pH	6.5	
W700	Specific Conductance @ 25C	7400	umhos/cm
W130	Chloride (Cl)	2900	mg/l

COMMENTS:

Reviewed and Approved by: DM



Laboratory Services Division
900 Gemini Avenue
Houston, TX 77058

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713 - 488-1810

LAB ANALYSIS REPORT

CLIENT NAME: GEO-ASSOCIATES
ADDRESS: 10700 CORPORATE DRIVE, SUIT 106
HOUSTON, TX 77477

REPORT DATE: 11/27/84

ATTENTION: WAYNE S. POLLARD

NUS CLIENT NO: 721501
NUS SAMPLE NO: 24110411
VENDOR NO: 05891400
WORK ORDER NO: 55680
DATE RECEIVED: 11/08/84

SAMPLE IDENTIFICATION: WELL 3 (DENKA)

11/08

TEST	DETERMINATION	RESULTS	UNITS
DU03	Benzene	< 10	ug/l
DU25	Toluene	< 10	ug/l
W310	RCRA GROUNDWATER-CONTAMINATION		
W100	Carbon, Total Organic (TOC)	5	mg/l
W315	Halogens, Total Organic (TOX)	86	ug/l
W490	pH	6.3	
W700	Specific Conductance @ 25C	2,900	umhos/cm
W130	Chloride (Cl)	510	mg/l

COMMENTS:

Reviewed and Approved by: DM



A Halliburton Company



Laboratory Service Division
900 Gemini Ave.
Houston, TX 77058

900 Gemini Avenue
Houston, TX 77058

713 - 488-1810

LAB ANALYSIS REPORT

CLIENT NAME: GEO-ASSOCIATES
ADDRESS: 10700 CORPORATE DRIVE, SUIT 106
HOUSTON, TX 77477

REPORT DATE: 11/27/84

ATTENTION: WAYNE S. POLLARD

MUS CLIENT NO: 721501
MUS SAMPLE NO: 24110412
VENDOR NO: 05891400
WORK ORDER NO: 55680
DATE RECEIVED: 11/08/84

SAMPLE IDENTIFICATION: WELL 4 (DENKA)

11/08

TEST	DETERMINATION	RESULTS	UNITS
OV03	Benzene	< 10	ug/l
OV25	Toluene	< 10	ug/l
W310	RCRA GROUNDWATER-CONTAMINATION		
W100	Carbon, Total Organic (TOC)	2	mg/l
W315	Halogens, Total Organic (TOX)	480	ug/l
W490	pH	6.7	
W700	Specific Conductance @ 25C	1,200	umhos/cm
W130	Chloride (Cl)	90	mg/l

COMMENTS:

Reviewed and Approved by: DM



Laboratory Ser Division
900 Gemini Ave.
Houston, TX 77058

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Houston, TX 77058

713 - 488-1810

LAB ANALYSIS REPORT

CLIENT NAME: GEO-ASSOCIATES
ADDRESS: 10700 CORPORATE DRIVE, SUIT 106
HOUSTON, TX 77477

REPORT DATE: 11/27/84

ATTENTION: WAYNE S. POLLARD

NUS CLIENT NO: 721501
NUS SAMPLE NO: 24110413
VENDOR NO: 05891400
WORK ORDER NO: 55680
DATE RECEIVED: 11/08/84

SAMPLE IDENTIFICATION: WELL 5A (DENKA)

11/08

TEST	DETERMINATION	RESULTS	UNITS
OV03	Benzene	< 10	ug/l
OV25	Toluene	< 10	ug/l
W310	RCRA GROUNDWATER-CONTAMINATION		
W100	Carbon, Total Organic (TOC)	< 1	mg/l
W315	Halogens, Total Organic (TOX)	190	ug/l
W490	pH	6.8	
W700	Specific Conductance @ 25C	750	umhos/cm
W130	Chloride (Cl)	93	mg/l

COMMENTS:

Reviewed and Approved by: DM



A Halliburton Company

LAB ANALYSIS REPORT

CLIENT NAME: GED-ASSOCIATES
 ADDRESS: 10700 CORPORATE DRIVE, SUIT 106
 HOUSTON, TX 77477

REPORT DATE: 11/27/84

ATTENTION: WAYNE S. POLLARD

NUS CLIENT NO: 721501
 NUS SAMPLE NO: 24110414
 VENDOR NO: 05891400
 WORK ORDER NO: 55680
 DATE RECEIVED: 11/08/84

SAMPLE IDENTIFICATION: WELL 21 (DENKA)

11/08

TEST	DETERMINATION	RESULTS	UNITS
OV03	Benzene	< 10	ug/l
OV25	Toluene	< 10	ug/l
W310	RCRA GROUNDWATER-CONTAMINATION		
W100	Carbon, Total Organic (TOC)	6	mg/l
W315	Halogens, Total Organic (TOX)	100	ug/l
W490	pH	6.9	
W700	Specific Conductance @ 25C	1,900	umhos/cm
W130	Chloride (Cl)	450	mg/l

COMMENTS:

Reviewed and Approved by: DM



A Halliburton Company



Laboratory Services Division
900 Gemini Avenue
Houston, TX 77058

900 Gemini Avenue
Houston, TX 77058

713 - 488-1810

LAB ANALYSIS REPORT

CLIENT NAME: GEO-ASSOCIATES
ADDRESS: 10700 CORPORATE DRIVE, SUIT 106
HOUSTON, TX 77477

REPORT DATE: 11/30/94

ATTENTION: WAYNE S. POLLARD

NUS CLIENT NO: 721501
NUS SAMPLE NO: 24110512
VENDOR NO: 05291400
WORK ORDER NO: 55660
DATE RECEIVED: 11/09/94

SAMPLE IDENTIFICATION: WELL 22 (DENKA)

11/09

TEST	DETERMINATION	RESULTS	UNITS
QV03	Benzene	< 10	ug/l
QV25	Toluene	< 10	ug/l
W310	RCRA GROUNDWATER-CONTAMINATION		
W100	Carbon, Total Organic (TOC)	2	mg/l
W315	Halogens, Total Organic (TOX)	240	ug/l
W490	pH	7.2	
W700	Specific Conductance @ 25C	1300	umhos/cm
W130	Chloride (Cl)	280	mg/l

COMMENTS:

Reviewed and Approved by: DM



DENKA Chemical Corporation 8701 Park Place Blvd. 77017 • P.O. Box 87220 Houston, Texas 77287 (713) 477-8821 Telex 77 46 96

May 29, 1984

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JUN 01 '84

Mr. Paul F. Lewis
Texas Department of Water Resources
P. O. Box 13087, Capitol Station
Austin, Texas 78711

ENFORCEMENT AND
FIELD OPERATIONS

SWR 31052

Dear Mr. Lewis:

Status Report - Groundwater Quality Assurance Plan

The following letter is a status report of Denka Chemical Corporation's Groundwater Quality Assurance Plan. At the end of the first year of groundwater monitoring, compilation of the data indicated some significant differences between Denka's upstream well and the four downstream monitoring wells. As a result of this significant difference, Denka submitted a Groundwater Quality Assurance Plan which was accepted by the Texas Department of Water Resources. The first two well samplings of this plan have been accomplished and this status report will summarize the results of those samplings.

Our Groundwater Quality Assurance Plan had four objectives: The first was ① to determine levels of contamination in groundwater at the Denka site; the ② second was to determine the extent of contamination; the third objective was ③ to determine the direction of groundwater flow; the final objective was to ④ determine, if possible, the source of contamination. In order to accomplish these objectives, two additional monitoring wells were drilled. The purpose of these two wells was to monitor the aquifer below those aquifers deemed contaminated by the original year's well water monitoring.

The two new wells were located adjacent to two wells used in the original monitoring program. the two original wells were screened in the 5- to 10-foot above mean sea level depth. The two new wells were screened at 45 to 50 feet below mean sea level. One of the original wells was located at the perimeter of the plant; the second one was near the maleic unit within the boundaries of the plant. The purpose of these two wells was to measure the extent of contamination in the 45- to 50-foot below sea level aquifer.

Our Groundwater Quality Assurance Plan called for component analysis to determine the materials most likely to show up in contaminated water sources from the Denka plant. Specific materials that Denka felt were possible contaminants included maleic acid, fumaric acid, 3,4-dichlorobutene-1, 1,4-dichlorobutene-2, chloroprene, 1-chlorobutadiene, and xylene.

The basis for analyses of these materials was ion chromatography and mass spectroanalysis. The well samples were analyzed by NUS Corporation. There is a question in the minds of chemists at NUS whether maleic acid and fumaric

May 29, 1984

acid can be analyzed by these methods. At this point, no approved method of analysis of these materials has been found.

Groundwater samples analyzed by reconstructed ion chromatographs indicate volatile materials of various types as distinct peaks on the chromatographs. The specific peaks were identified by mass spectroanalysis. The data received from the mass spec analysis was compared against 30,000 materials whose spectrum is known. The fact that none of the significant RIC peaks were identified as the components that Denka felt might be possible contaminants indicate that these compounds were not present in significant or measurable amounts. The materials that were identified are shown in the attached table. Most of these materials are shown to be insignificant quantities or within reasonable analytical limits. Of the materials which did appear to be significant, none were compounds which would reasonably be expected to come from the Denka facility. This is further indicated by the fact that these components also showed up in Denka's upstream monitoring well.

Indicated parameters were run on all seven wells. As shown by the results on the attached table, the indicated parameters for the shallow wells are approximately the same as they have been during the first year's sampling. These parameter analyses for the two wells show very good water quality.

The conclusions that we have reached from the results of the Groundwater Quality Assurance Program at this point are as follows:

1. Groundwater quality in the uppermost aquifer remains approximately the same as it has for the past year.
2. Groundwater quality in the two new wells screened at 45 to 50 feet below mean sea level is good.
3. Materials identified in the upper aquifer are materials that would not reasonably be expected to originate at the Denka facility.
4. Components which could be expected to be in contaminated aquifers from the Denka facility have not been detected.

The third quarter groundwater sampling will be made approximately mid-June. As soon as the results of this sampling have been tabulated, a final report will be issued.

Should you have any questions concerning the data submitted in this status report, or any other aspect of our Groundwater Quality Assurance Plan, please do not hesitate to contact me.

Very truly yours,



R. E. Hinkson
Manager of Quality Assurance

bf



Laboratory Services Division
900 Gemini Avenue
Houston, TX 77058

REMIT TO:
900 Gemini Avenue
Houston, TX 77058

713 - 488-1810

LAB ANALYSIS REPORT

CLIENT NAME: GEO-ASSOCIATES
ADDRESS: 10701 CORPORATE DRIVE, SUIT 282
STAFFORD, TX 77477

NUS PROJECT NO: 000000
NUS CLIENT NO: 721501

REPORT DATE: 12/28/83

ATTENTION: WAYNE S. POLLARD

DATE RECEIVED: 12/06/83

SAMPLE IDENTIFICATION	NUS SAMPLE NO	RESULTS	UNITS
WELL 1 (DENKA)	12/05	23120214	
0110 VOLATILES-PP IN WATER			
OV01 Acrolein		< 100	ug/l
OV02 Acrylonitrile		< 100	ug/l
OV03 Benzene		< 10	ug/l
OV05 Bromoform		< 10	ug/l
OV06 Carbon Tetrachloride		< 10	ug/l
OV07 Chlorobenzene		< 10	ug/l
OV08 Chlorodibromomethane		< 10	ug/l
OV09 Chloroethane		< 10	ug/l
OV10 2-Chloroethylvinyl Ether		< 10	ug/l
OV11 Chloroform		< 10	ug/l
OV12 Dichlorobromomethane		< 10	ug/l
OV14 1,1-Dichloroethane		< 10	ug/l
OV15 1,2-Dichloroethane		< 10	ug/l
OV16 1,1-Dichloroethylene		< 10	ug/l
OV17 1,2-Dichloropropane		< 10	ug/l
OV18 1,3-Dichloropropylene		< 10	ug/l
OV19 Ethylbenzene		< 10	ug/l
OV20 Methyl Bromide		< 10	ug/l
OV21 Methyl Chloride		< 10	ug/l
OV22 Methylene Chloride		< 10	ug/l
OV23 1,1,2,2-Tetrachloroethane		< 10	ug/l
OV24 Tetrachloroethylene(Perchloro)		< 10	ug/l
OV25 Toluene		< 10	ug/l
OV26 1,2-Trans-Dichloroethylene		< 10	ug/l
OV27 1,1,1-Trichloroethane		< 10	ug/l
OV28 1,1,2-Trichloroethane		< 10	ug/l
OV29 Trichloroethylene		< 10	ug/l
OV31 Vinyl chloride		< 10	ug/l
0120 ACIDS - PP IN WATER			
OA01 2-Chlorophenol		< 10	ug/l
OA02 2,4-Dichlorophenol		< 10	ug/l



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LAB ANALYSIS REPORT

CLIENT NAME: GEO-ASSOCIATES
ADDRESS: 10701 CORPORATE DRIVE, SUIT 282
STAFFORD, TX 77477

NUS PROJECT NO: 000000
NUS CLIENT NO: 721501

REPORT DATE: 12/28/83

ATTENTION: WAYNE S. POLLARD

DATE RECEIVED: 12/06/83

SAMPLE IDENTIFICATION	NUS SAMPLE NO	RESULTS	UNITS
0A03 2,4-Dimethylphenol		< 10	ug/l
0A04 4,6-Dinitro-o-cresol		< 10	ug/l
0A05 2,4-Dinitrophenol		< 10	ug/l
0A06 2-Nitrophenol		< 10	ug/l
0A07 4-Nitrophenol		< 10	ug/l
0A08 p-Chloro-o-cresol		< 10	ug/l
0A09 Pentachlorophenol		< 10	ug/l
0A10 Phenol		< 10	ug/l
0A11 2,4,6-Trichlorophenol		< 10	ug/l
0E30 Acid Extraction-Water			
0130 BASE NEUTRALS - PP IN WATER			
0B01 Acenaphthene		< 10	ug/l
0B02 Acenaphthylene		< 10	ug/l
0B03 Anthracene		< 10	ug/l
0B04 Benzidine		< 10	ug/l
0B05 Benzo(a)Anthracene		< 10	ug/l
0B06 Benzo(a)Pyrene		< 10	ug/l
0B07 3,4-Benzofluoranthene		< 10	ug/l
0B08 Benzo(g,h,i)Perylene		< 10	ug/l
0B09 Benzo(k)Fluoranthene		< 10	ug/l
0B10 Bis(2-Chloroethoxy)Methane		< 10	ug/l
0B11 Bis(2-Chloroethyl)Ether		< 10	ug/l
0B12 Bis(2-Chloroisopropyl)Ether		< 10	ug/l
0B13 Bis(2-Ethylhexyl)Phthalate		< 10	ug/l
0B14 4-Bromophenyl Phenyl Ether		< 10	ug/l
0B15 Butyl Benzyl Phthalate		< 10	ug/l
0B16 2-Chloronaphthalene		< 10	ug/l
0B17 4-Chlorophenyl Phenyl Ether		< 10	ug/l
0B18 Chrysene		< 10	ug/l
0B19 Dibenzo(a,h)Anthracene		< 10	ug/l
0B20 1,2-Dichlorobenzene		< 10	ug/l
0B21 1,3-Dichlorobenzene		< 10	ug/l
0B22 1,4-Dichlorobenzene		< 10	ug/l
0B23 3,3'-Dichlorobenzidine		< 10	ug/l

PAGE NO: 2





Laboratory Sciences Division
900 Gemini Avenue
Houston, TX 77058

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713 - 488-1810

LAB ANALYSIS REPORT

CLIENT NAME: GEO-ASSOCIATES
ADDRESS: 10701 CORPORATE DRIVE, SUIT 282
STAFFORD, TX 77477

NUS PROJECT NO: 000000
NUS CLIENT NO: 721501

REPORT DATE: 12/28/83

ATTENTION: WAYNE S. POLLARD

DATE RECEIVED: 12/06/83

SAMPLE IDENTIFICATION		NUS SAMPLE NO	RESULTS	UNITS
0824	Diethyl Phthalate		< 10	ug/l
0825	Dimethyl Phthalate		< 10	ug/l
0826	Di-N-Butyl Phthalate		< 10	ug/l
0827	2,4-Dinitrotoluene		< 10	ug/l
0828	2,6-Dinitrotoluene		< 10	ug/l
0829	Di-N-Octyl Phthalate		< 10	ug/l
0830	1,2-Diphenylhydrazine(Azobz)		< 10	ug/l
0831	Fluoranthene		< 10	ug/l
0832	Fluorene		< 10	ug/l
0833	Hexachlorobenzene		< 10	ug/l
0834	Hexachlorobutadiene		< 10	ug/l
0835	Hexachloro-cyclopentadiene		< 10	ug/l
0836	Hexachloroethane		< 10	ug/l
0837	Indeno(1,2,3 cd)Pyrene		< 10	ug/l
0838	Isophorone		< 10	ug/l
0839	Naphthalene		< 10	ug/l
0840	Nitrobenzene		< 10	ug/l
0841	N-Nitrosodimethylamine		< 10	ug/l
0842	N-Nitrosodi-N-Propylamine		< 10	ug/l
0843	N-Nitrosodiphenylamine		< 10	ug/l
0844	Phenanthrene		< 10	ug/l
0845	Pyrene		< 10	ug/l
0846	1,2,4-Trichlorobenzene		< 10	ug/l
0E25	Base Neutral Extraction-Water			
0G36	GC/MS Additional Identification			N/A
W310	RCRA GROUNDWATER-CONTAMINATION			
W100	Carbon, organic (C)		23	mg/l
W315	Halogens, Total Organic (TOX)		280	ug/l
W490	pH		6.6	
W700	Specific Conductance @ 25 C		7,200	umhos/cm
WELL 2 (DENKA)				
		12/05	23120215	
0110	VOLATILES-PP IN WATER			
0V01	Acrolein		< 100	ug/l



Laboratory Services Division
900 Gemini Avenue
Houston, TX 77058

REMIT TO:
900 Gemini Avenue
Houston, TX 77058

713-488-1810

LAB ANALYSIS REPORT

CLIENT NAME: GEO-ASSOCIATES
ADDRESS: 10701 CORPORATE DRIVE, SUIT 282
STAFFORD, TX 77477

NUS PROJECT NO: 000000
NUS CLIENT NO: 721501

REPORT DATE: 12/28/83

ATTENTION: WAYNE S. POLLARD

DATE RECEIVED: 12/06/83

SAMPLE IDENTIFICATION	NUS SAMPLE NO	RESULTS	UNITS
OV02 Acrylonitrile		< 100	ug/l
OV03 Benzene		24	ug/l
OV05 Bromoform		< 10	ug/l
OV06 Carbon Tetrachloride		< 10	ug/l
OV07 Chlorobenzene		< 10	ug/l
OV08 Chlorodibromomethane		< 10	ug/l
OV09 Chloroethane		< 10	ug/l
OV10 2-Chloroethylvinyl Ether		< 10	ug/l
OV11 Chloroform		< 10	ug/l
OV12 Dichlorobromomethane		< 10	ug/l
OV14 1,1-Dichloroethane		< 10	ug/l
OV15 1,2-Dichloroethane		< 10	ug/l
OV16 1,1-Dichloroethylene		< 10	ug/l
OV17 1,2-Dichloropropane		< 10	ug/l
OV18 1,3-Dichloropropylene		< 10	ug/l
OV19 Ethylbenzene		13	ug/l
OV20 Methyl Bromide		< 10	ug/l
OV21 Methyl Chloride		< 10	ug/l
OV22 Methylene Chloride		< 10	ug/l
OV23 1,1,2,2-Tetrachloroethane		< 10	ug/l
OV24 Tetrachloroethylene(Perchloro)		< 10	ug/l
OV25 Toluene		39	ug/l
OV26 1,2-Trans-Dichloroethylene		< 10	ug/l
OV27 1,1,1-Trichloroethane		< 10	ug/l
OV28 1,1,2-Trichloroethane		< 10	ug/l
OV29 Trichloroethylene		< 10	ug/l
OV31 Vinyl chloride		< 10	ug/l
0120 ACIDS - PP IN WATER			
OA01 2-Chlorophenol		< 10	ug/l
OA02 2,4-Dichlorophenol		< 10	ug/l
OA03 2,4-Dimethylphenol		< 10	ug/l
OA04 4,6-Dinitro-o-cresol		< 10	ug/l
OA05 2,4-Dinitrophenol		< 10	ug/l
OA06 2-Nitrophenol		< 10	ug/l

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LAB ANALYSIS REPORT

CLIENT NAME: GED-ASSOCIATES
ADDRESS: 10701 CORPORATE DRIVE, SUIT 282
STAFFORD, TX 77477

NUS PROJECT NO: 000000
NUS CLIENT NO: 721501

REPORT DATE: 12/28/83

ATTENTION: WAYNE S. POLLARD

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SAMPLE IDENTIFICATION	NUS SAMPLE NO	RESULTS	UNITS
0A07 4-Nitrophenol		< 10	ug/l
0A08 p-Chloro-m-cresol		< 10	ug/l
0A09 Pentachlorophenol		< 10	ug/l
0A10 Phenol		< 10	ug/l
0A11 2,4,6-Trichlorophenol		< 10	ug/l
0E30 Acid Extraction-Water			
0130 BASE NEUTRALS - PP IN WATER			
0B01 Acenaphthene		< 10	ug/l
0B02 Acenaphthylene		< 10	ug/l
0B03 Anthracene		< 10	ug/l
0B04 Benzidine		< 10	ug/l
0B05 Benzo(a)Anthracene		< 10	ug/l
0B06 Benzo(a)Pyrene		< 10	ug/l
0B07 3,4-Benzofluoranthene		< 10	ug/l
0B08 Benzo(ghi)Perylene		< 10	ug/l
0B09 Benzo(k)Fluoranthene		< 10	ug/l
0B10 Bis(2-Chloroethoxy)Methane		< 10	ug/l
0B11 Bis(2-Chloroethyl)Ether		< 10	ug/l
0B12 Bis(2-Chloroisopropyl)Ether		< 10	ug/l
0B13 Bis(2-Ethylhexyl)Phthalate		27	ug/l
0B14 4-Bromophenyl Phenyl Ether		< 10	ug/l
0B15 Butyl Benzyl Phthalate		< 10	ug/l
0B16 2-Chloronaphthalene		< 10	ug/l
0B17 4-Chlorophenyl Phenyl Ether		< 10	ug/l
0B18 Chrysene		< 10	ug/l
0B19 Dibenzo(a,h)Anthracene		< 25	ug/l
0B20 1,2-Dichlorobenzene		< 10	ug/l
0B21 1,3-Dichlorobenzene		< 10	ug/l
0B22 1,4-Dichlorobenzene		< 10	ug/l
0B23 3,3'-Dichlorobenzidine		< 10	ug/l
0B24 Diethyl Phthalate		< 10	ug/l
0B25 Dimethyl Phthalate		< 10	ug/l
0B26 Di-N-Butyl Phthalate		< 10	ug/l
0B27 2,4-Dinitrotoluene		< 10	ug/l

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LAB ANALYSIS REPORT

CLIENT NAME: GEO-ASSOCIATES
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NUS PROJECT NO: 000000
NUS CLIENT NO: 721501

REPORT DATE: 12/28/83

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DATE RECEIVED: 12/06/83

SAMPLE IDENTIFICATION	NUS SAMPLE NO	RESULTS	UNITS
0828 2,6-Dinitrotoluene		< 10	ug/l
0829 Di-N-Octyl Phthalate		< 10	ug/l
0830 1,2-Diphenylhydrazine(Azobz)		< 10	ug/l
0831 Fluoranthene		< 10	ug/l
0832 Fluorene		< 10	ug/l
0833 Hexachlorbenzene		< 10	ug/l
0834 Hexachlorobutadiene		< 10	ug/l
0835 Hexachloro-cyclopentadiene		< 10	ug/l
0836 Hexachloroethane		< 10	ug/l
0837 Indeno(1,2,3 cd)Pyrene		< 10	ug/l
0838 Isophorone		< 10	ug/l
0839 Naphthalene		< 10	ug/l
0840 Nitrobenzene		< 10	ug/l
0841 N-Nitrosodimethylamine		< 10	ug/l
0842 N-Nitrosodi-N-Propylamine		< 10	ug/l
0843 N-Nitrosodiphenylamine		< 10	ug/l
0844 Phenanthrene		< 10	ug/l
0845 Pyrene		< 10	ug/l
0846 1,2,4-Trichlorobenzene		< 10	ug/l
0E25 Base Neutral Extraction-Water			
0G36 GC/MS Additional Identification			N/A
W310 RCRA GROUNDWATER-CONTAMINATION			
W100 Carbon, organic (C)		38	ng/l
W315 Halogens, Total Organic (TOX)		1000	ug/l
W490 pH		6.3	
W700 Specific Conductance @ 25 C		7,800	umhos/cm

WELL 3 (DENKA)

12/05

23120216

0110 VOLATILES-PP IN WATER

0V01 Acrolein	< 100	ug/l
0V02 Acrylonitrile	< 100	ug/l
0V03 Benzene	< 10	ug/l
0V05 Bromoform	< 10	ug/l
0V06 Carbon Tetrachloride	< 10	ug/l

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NUS CLIENT NO: 721501

REPORT DATE: 12/28/83

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DATE RECEIVED: 12/06/83

SAMPLE IDENTIFICATION	NUS SAMPLE NO	RESULTS	UNITS
OV07 Chlorobenzene		< 10	ug/l
OV08 Chlorodibromomethane		< 10	ug/l
OV09 Chloroethane		< 10	ug/l
OV10 2-Chloroethylvinyl Ether		< 10	ug/l
OV11 Chloroform		< 10	ug/l
OV12 Dichlorobromomethane		< 10	ug/l
OV14 1,1-Dichloroethane		< 10	ug/l
OV15 1,2-Dichloroethane		< 10	ug/l
OV16 1,1-Dichloroethylene		< 10	ug/l
OV17 1,2-Dichloropropane		< 10	ug/l
OV18 1,3-Dichloropropylene		< 10	ug/l
OV19 Ethylbenzene		< 10	ug/l
OV20 Methyl Bromide		< 10	ug/l
OV21 Methyl Chloride		< 10	ug/l
OV22 Methylene Chloride		< 10	ug/l
OV23 1,1,2,2-Tetrachloroethane		< 10	ug/l
OV24 Tetrachloroethylene(Perchloro)		< 10	ug/l
OV25 Toluene		< 10	ug/l
OV26 1,2-Trans-Dichloroethylene		< 10	ug/l
OV27 1,1,1-Trichloroethane		< 10	ug/l
OV28 1,1,2-Trichloroethane		< 10	ug/l
OV29 Trichloroethylene		240	ug/l
OV31 Vinyl chloride		< 10	ug/l
0120 ACIDS - PP IN WATER			
OA01 2-Chlorophenol		< 10	ug/l
OA02 2,4-Dichlorophenol		< 10	ug/l
OA03 2,4-Dimethylphenol		< 10	ug/l
OA04 4,6-Dinitro-o-cresol		< 10	ug/l
OA05 2,4-Dinitrophenol		< 10	ug/l
OA06 2-Nitrophenol		< 10	ug/l
OA07 4-Nitrophenol		< 10	ug/l
OA08 p-Chloro-m-cresol		< 10	ug/l
OA09 Pentachlorophenol		< 10	ug/l
OA10 Phenol		< 10	ug/l



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NUS PROJECT NO: 000000
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REPORT DATE: 12/28/83

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DATE RECEIVED: 12/06/83

SAMPLE IDENTIFICATION	NUS SAMPLE NO	RESULTS	UNITS
0A11 2,4,6-Trichlorophenol		(10	ug/l
0E30 Acid Extraction-Water			
0130 BASE NEUTRALS - PP IN WATER			
0B01 Acenaphthene		(10	ug/l
0B02 Acenaphthylene		(10	ug/l
0B03 Anthracene		(10	ug/l
0B04 Benzidine		(10	ug/l
0B05 Benzo(a)Anthracene		(10	ug/l
0B06 Benzo(a)Pyrene		(10	ug/l
0B07 3,4-Benzofluoranthene		(10	ug/l
0B08 Benzo(ghi)Perylene		(10	ug/l
0B09 Benzo(k)Fluoranthene		(10	ug/l
0B10 Bis(2-Chloroethoxy)Methane		(10	ug/l
0B11 Bis(2-Chloroethyl)Ether		(10	ug/l
0B12 Bis(2-Chloroisopropyl)Ether		(10	ug/l
0B13 Bis(2-Ethylhexyl)Phthalate		(10	ug/l
0B14 4-Bromophenyl Phenyl Ether		(10	ug/l
0B15 Butyl Benzyl Phthalate		(10	ug/l
0B16 2-Chloronaphthalene		(10	ug/l
0B17 4-Chlorophenyl Phenyl Ether		(10	ug/l
0B18 Chrysene		(10	ug/l
0B19 Dibenz(a,h)Anthracene		(10	ug/l
0B20 1,2-Dichlorobenzene		(10	ug/l
0B21 1,3-Dichlorobenzene		(10	ug/l
0B22 1,4-Dichlorobenzene		(10	ug/l
0B23 3,3'-Dichlorobenzidine		(10	ug/l
0B24 Diethyl Phthalate		(10	ug/l
0B25 Dimethyl Phthalate		(10	ug/l
0B26 Di-N-Butyl Phthalate		(10	ug/l
0B27 2,4-Dinitrotoluene		(10	ug/l
0B28 2,6-Dinitrotoluene		(10	ug/l
0B29 Di-N-Octyl Phthalate		(10	ug/l
0B30 1,2-Diphenylhydrazine(Azobz)		(10	ug/l
0B31 Fluoranthene		(10	ug/l





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STAFFORD, TX 77477

NUS PROJECT NO: 000000
NUS CLIENT NO: 721501

REPORT DATE: 12/28/83

ATTENTION: WAYNE S. POLLARD

DATE RECEIVED: 12/06/83

SAMPLE IDENTIFICATION	NUS SAMPLE NO	RESULTS	UNITS
OB32 Fluorene		< 10	ug/l
OB33 Hexachlorbenzene		< 10	ug/l
OB34 Hexachlorobutadiene		< 10	ug/l
OB35 Hexachloro-cyclopentadiene		< 10	ug/l
OB36 Hexachloroethane		< 10	ug/l
OB37 Indeno(1,2,3 cd)Pyrene		< 10	ug/l
OB38 Isophorone		< 10	ug/l
OB39 Naphthalene		< 10	ug/l
OB40 Nitrobenzene		< 10	ug/l
OB41 N-Nitrosodimethylamine		< 10	ug/l
OB42 N-Nitrosodi-N-Propylamine		< 10	ug/l
OB43 N-Nitrosodiphenylamine		< 10	ug/l
OB44 Phenanthrene		< 10	ug/l
OB45 Pyrene		< 10	ug/l
OB46 1,2,4-Trichlorobenzene		< 10	ug/l
OE25 Base Neutral Extraction-Water			
OB36 GC/MS Additional Identification			N/A
W310 RCRA GROUNDWATER-CONTAMINATION			
W100 Carbon, organic (C)		11	mg/l
W315 Halogens, Total Organic (TOX)		170	ug/l
W490 pH		6.4	
W700 Specific Conductance @ 25 C		2,900	umhos/cm

WELL #4 (DENKA)

12/05

23120217

Q110 VOLATILES-PP IN WATER

OV01 Acrolein	< 100	ug/l
OV02 Acrylonitrile	< 100	ug/l
OV03 Benzene	< 10	ug/l
OV05 Bromoform	< 10	ug/l
OV06 Carbon Tetrachloride	< 10	ug/l
OV07 Chlorobenzene	< 10	ug/l
OV08 Chlorodibromomethane	< 10	ug/l
OV09 Chloroethane	< 10	ug/l
OV10 2-Chloroethylvinyl Ether	< 10	ug/l

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713 - 488-1810

LAB ANALYSIS REPORT

CLIENT NAME: GEO-ASSOCIATES
ADDRESS: 10701 CORPORATE DRIVE, SUIT 282
STAFFORD, TX 77477

NUS PROJECT NO: Q00000
NUS CLIENT NO: 721501

REPORT DATE: 12/28/83

ATTENTION: WAYNE S. POLLARD

DATE RECEIVED: 12/06/83

SAMPLE IDENTIFICATION	NUS SAMPLE NO	RESULTS	UNITS
OV11 Chloroform		(10	ug/l
OV12 Dichlorobromomethane		(10	ug/l
OV14 1,1-Dichloroethane		(10	ug/l
OV15 1,2-Dichloroethane		(10	ug/l
OV16 1,1-Dichloroethylene		(10	ug/l
OV17 1,2-Dichloropropane		(10	ug/l
OV18 1,3-Dichloropropylene		(10	ug/l
OV19 Ethylbenzene		(10	ug/l
OV20 Methyl Bromide		(10	ug/l
OV21 Methyl Chloride		(10	ug/l
OV22 Methylene Chloride		10	ug/l
OV23 1,1,2,2-Tetrachloroethane		(10	ug/l
OV24 Tetrachloroethylene(Perchloro)		(10	ug/l
OV25 Toluene		(10	ug/l
OV26 1,2-Trans-Dichloroethylene		(10	ug/l
OV27 1,1,1-Trichloroethane		(10	ug/l
OV28 1,1,2-Trichloroethane		(10	ug/l
OV29 Trichloroethylene		240	ug/l
OV31 Vinyl chloride		(10	ug/l
0120 ACIDS - PP IN WATER			
OA01 2-Chlorophenol		(10	ug/l
OA02 2,4-Dichlorophenol		(10	ug/l
OA03 2,4-Dimethylphenol		(10	ug/l
OA04 4,6-Dinitro-o-cresol		(10	ug/l
OA05 2,4-Dinitrophenol		(10	ug/l
OA06 2-Nitrophenol		(10	ug/l
OA07 4-Nitrophenol		(10	ug/l
OA08 p-Chloro-m-cresol		(10	ug/l
OA09 Pentachlorophenol		(10	ug/l
OA10 Phenol		(10	ug/l
OA11 2,4,6-Trichlorophenol		(10	ug/l
OE30 Acid Extraction-Water			
0130 BASE NEUTRALS - PP IN WATER			
OB01 Acenaphthene		(10	ug/l



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LAB ANALYSIS REPORT

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NUS PROJECT NO: 000000
NUS CLIENT NO: 721501

REPORT DATE: 12/28/83

ATTENTION: WAYNE S. POLLARD

DATE RECEIVED: 12/06/83

SAMPLE IDENTIFICATION	NUS SAMPLE NO	RESULTS	UNITS
0802 Acenaphthylene		< 10	ug/l
0803 Anthracene		< 10	ug/l
0804 Benzidine		< 10	ug/l
0805 Benzo(a)Anthracene		< 10	ug/l
0806 Benzo(a)Pyrene		< 10	ug/l
0807 3,4-Benzofluoranthene		< 10	ug/l
0808 Benzo(ghi)Perylene		< 10	ug/l
0809 Benzo(k)Fluoranthene		< 10	ug/l
0810 Bis(2-Chloroethoxy)Methane		< 10	ug/l
0811 Bis(2-Chloroethyl)Ether		< 10	ug/l
0812 Bis(2-Chloroisopropyl)Ether		< 10	ug/l
0813 Bis(2-Ethylhexyl)Phthalate		52	ug/l
0814 4-Bromophenyl Phenyl Ether		< 10	ug/l
0815 Butyl Benzyl Phthalate		< 10	ug/l
0816 2-Chloronaphthalene		< 10	ug/l
0817 4-Chlorophenyl Phenyl Ether		< 10	ug/l
0818 Chrysene		< 10	ug/l
0819 Dibenzo(a,h)Anthracene		< 10	ug/l
0820 1,2-Dichlorobenzene		< 10	ug/l
0821 1,3-Dichlorobenzene		< 10	ug/l
0822 1,4-Dichlorobenzene		< 10	ug/l
0823 3,3'-Dichlorobenzidine		< 10	ug/l
0824 Diethyl Phthalate		< 10	ug/l
0825 Dimethyl Phthalate		< 10	ug/l
0826 Di-N-Butyl Phthalate		< 10	ug/l
0827 2,4-Dinitrotoluene		< 10	ug/l
0828 2,6-Dinitrotoluene		< 10	ug/l
0829 Di-N-Octyl Phthalate		< 10	ug/l
0830 1,2-Diphenylhydrazine(Azobz)		< 10	ug/l
0831 Fluoranthene		< 10	ug/l
0832 Fluorene		< 10	ug/l
0833 Hexachlorobenzene		< 10	ug/l
0834 Hexachlorobutadiene		< 10	ug/l
0835 Hexachloro-cyclopentadiene		< 10	ug/l





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STAFFORD, TX 77477

NUS PROJECT NO: 000000
NUS CLIENT NO: 721501

REPORT DATE: 12/28/83

ATTENTION: WAYNE S. POLLARD

DATE RECEIVED: 12/06/83

SAMPLE IDENTIFICATION	NUS SAMPLE NO	RESULTS	UNITS
0836 Hexachloroethane		< 10	ug/l
0837 Indeno(1,2,3 cd)Pyrene		< 10	ug/l
0838 Isophorone		< 10	ug/l
0839 Naphthalene		< 10	ug/l
0840 Nitrobenzene		< 10	ug/l
0841 N-Nitrosodimethylamine		< 10	ug/l
0842 N-Nitrosodi-N-Propylamine		< 10	ug/l
0843 N-Nitrosodiphenylamine		< 10	ug/l
0844 Phenanthrene		< 10	ug/l
0845 Pyrene		< 10	ug/l
0846 1,2,4-Trichlorobenzene		< 10	ug/l
0E25 Base Neutral Extraction-Water			
0G36 GC/MS Additional Identification			N/A
W310 RCRA GROUNDWATER-CONTAMINATION			
W100 Carbon, organic (C)		7	ng/l
W315 Halogens, Total Organic (TOX)		620	ug/l
W490 pH		7.0	
W700 Specific Conductance @ 25 C		1,200	umhos/cm
WELL 5A (DENKA)	12/05	23120218	
Q110 VOLATILES-PP IN WATER			
QV01 Acrolein		< 100	ug/l
QV02 Acrylonitrile		< 100	ug/l
QV03 Benzene		< 10	ug/l
QV05 Bromoform		< 10	ug/l
QV06 Carbon Tetrachloride		< 10	ug/l
QV07 Chlorobenzene		< 10	ug/l
QV08 Chlorodibromomethane		< 10	ug/l
QV09 Chloroethane		< 10	ug/l
QV10 2-Chloroethylvinyl Ether		< 10	ug/l
QV11 Chloroform		< 10	ug/l
QV12 Dichlorobromomethane		< 10	ug/l
QV14 1,1-Dichloroethane		< 10	ug/l
QV15 1,2-Dichloroethane		< 10	ug/l



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LAE ANALYSIS REPORT

CLIENT NAME: GEO-ASSOCIATES
ADDRESS: 10701 CORPORATE DRIVE, SUIT 282
STAFFORD, TX 77477

NUS PROJECT NO: 000000
NUS CLIENT NO: 721501

REPORT DATE: 12/28/83

ATTENTION: WAYNE S. POLLARD

DATE RECEIVED: 12/06/83

SAMPLE IDENTIFICATION	NUS SAMPLE NO	RESULTS	UNITS
OV16 1,1-Dichloroethylene		< 10	ug/l
OV17 1,2-Dichloropropane		< 10	ug/l
OV18 1,3-Dichloropropylene		< 10	ug/l
OV19 Ethylbenzene		< 10	ug/l
OV20 Methyl Bromide		< 10	ug/l
OV21 Methyl Chloride		< 10	ug/l
OV22 Methylene Chloride		< 10	ug/l
OV23 1,1,2,2-Tetrachloroethane		10	ug/l
OV24 Tetrachloroethylene(Perchloro)		< 10	ug/l
OV25 Toluene		< 10	ug/l
OV26 1,2-Trans-Dichloroethylene		< 10	ug/l
OV27 1,1,1-Trichloroethane		< 10	ug/l
OV28 1,1,2-Trichloroethane		< 10	ug/l
OV29 Trichloroethylene		< 10	ug/l
OV31 Vinyl chloride		< 10	ug/l
0120 ACIDS - PP IN WATER			
OA01 2-Chlorophenol		< 10	ug/l
OA02 2,4-Dichlorophenol		< 10	ug/l
OA03 2,4-Dimethylphenol		< 10	ug/l
OA04 4,6-Dinitro-o-cresol		< 10	ug/l
OA05 2,4-Dinitrophenol		< 10	ug/l
OA06 2-Nitrophenol		< 10	ug/l
OA07 4-Nitrophenol		< 10	ug/l
OA08 p-Chloro-o-cresol		< 10	ug/l
OA09 Pentachlorophenol		< 10	ug/l
OA10 Phenol		< 10	ug/l
OA11 2,4,6-Trichlorophenol		< 10	ug/l
OE30 Acid Extraction-Water			
0130 BASE NEUTRALS - PP IN WATER			
OB01 Acenaphthene		< 10	ug/l
OB02 Acenaphthylene		< 10	ug/l
OB03 Anthracene		< 10	ug/l
OB04 Benzidine		< 10	ug/l
OB05 Benzo(a)Anthracene		< 10	ug/l



Laboratory Sciences Division
900 Gemini Avenue
Houston, TX 77058

REMIT TO:
900 Gemini Avenue
Houston, TX 77058

713 - 488-1810

LAB ANALYSIS REPORT

CLIENT NAME: GEO-ASSOCIATES
ADDRESS: 10701 CORPORATE DRIVE, SUIT 282
STAFFORD, TX 77477

NUS PROJECT NO: 000000
NUS CLIENT NO: 721501

REPORT DATE: 12/28/83

ATTENTION: WAYNE S. POLLARD

DATE RECEIVED: 12/06/83

SAMPLE IDENTIFICATION	NUS SAMPLE NO	RESULTS	UNITS
0806 Benzo(a)Pyrene		(10	ug/l
0807 3,4-Benzofluoranthene		(10	ug/l
0808 Benzo(ghi)Perylene		(10	ug/l
0809 Benzo(k)Fluoranthene		(10	ug/l
0810 Bis(2-Chloroethoxy)Methane		(10	ug/l
0811 Bis(2-Chloroethyl)Ether		(10	ug/l
0812 Bis(2-Chloroisopropyl)Ether		(10	ug/l
0813 Bis(2-Ethylhexyl)Phthalate		15	ug/l
0814 4-Bromophenyl Phenyl Ether		(10	ug/l
0815 Butyl Benzyl Phthalate		(10	ug/l
0816 2-Chloronaphthalene		(10	ug/l
0817 4-Chlorophenyl Phenyl Ether		(10	ug/l
0818 Chrysene		(10	ug/l
0819 Dibenzo(a,h)Anthracene		(10	ug/l
0820 1,2-Dichlorobenzene		(10	ug/l
0821 1,3-Dichlorobenzene		(10	ug/l
0822 1,4-Dichlorobenzene		(10	ug/l
0823 3,3'-Dichlorobenzidine		(10	ug/l
0824 Diethyl Phthalate		(10	ug/l
0825 Dimethyl Phthalate		(10	ug/l
0826 Di-N-Butyl Phthalate		(10	ug/l
0827 2,4-Dinitrotoluene		(10	ug/l
0828 2,6-Dinitrotoluene		(10	ug/l
0829 Di-N-Octyl Phthalate		(10	ug/l
0830 1,2-Diphenylhydrazine(Azobz)		(10	ug/l
0831 Fluoranthene		(10	ug/l
0832 Fluorene		(10	ug/l
0833 Hexachlorobenzene		(10	ug/l
0834 Hexachlorobutadiene		(10	ug/l
0835 Hexachloro-cyclopentadiene		(10	ug/l
0836 Hexachloroethane		(10	ug/l
0837 Indeno(1,2,3 cd)Pyrene		(10	ug/l
0838 Isophorone		(10	ug/l
0839 Naphthalene		(10	ug/l





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LAE ANALYSIS REPORT

CLIENT NAME: GEO-ASSOCIATES
ADDRESS: 10701 CORPORATE DRIVE, SUIT 282
STAFFORD, TX 77477

NUS PROJECT NO: 000000
NUS CLIENT NO: 721501

REPORT DATE: 12/28/83

ATTENTION: WAYNE S. POLLARD

DATE RECEIVED: 12/06/83

SAMPLE IDENTIFICATION

NUS SAMPLE NO

RESULTS

UNITS

0B40	Nitrobenzene	< 10	ug/l
0B41	N-Nitrosodimethylamine	< 10	ug/l
0B42	N-Nitrosodi-N-Propylamine	< 10	ug/l
0B43	N-Nitrosodiphenylamine	< 10	ug/l
0B44	Phenanthrene	< 10	ug/l
0B45	Pyrene	< 10	ug/l
0B46	1,2,4-Trichlorobenzene	< 10	ug/l
0E25	Base Neutral Extraction-Water		
0G36	GC/MS Additional Identification		N/A
W310	RCRA GROUNDWATER-CONTAMINATION		
W100	Carbon, organic (C)	8	mg/l
W315	Halogens, Total Organic (TOX)	260	ug/l
W490	pH	6.7	
W700	Specific Conductance @ 25 C	5,300	umhos/cm

21 (DENKA)

12/05

23120219

0110 VOLATILES-PP IN WATER

0V01	Acrolein	< 100	ug/l
0V02	Acrylonitrile	< 100	ug/l
0V03	Benzene	< 10	ug/l
0V05	Bromoform	< 10	ug/l
0V06	Carbon Tetrachloride	< 10	ug/l
0V07	Chlorobenzene	< 10	ug/l
0V08	Chlorodibromomethane	< 10	ug/l
0V09	Chloroethane	< 10	ug/l
0V10	2-Chloroethylvinyl Ether	< 10	ug/l
0V11	Chloroform	< 10	ug/l
0V12	Dichlorobromomethane	< 10	ug/l
0V14	1,1-Dichloroethane	< 10	ug/l
0V15	1,2-Dichloroethane	< 10	ug/l
0V16	1,1-Dichloroethylene	< 10	ug/l
0V17	1,2-Dichloropropane	< 10	ug/l
0V18	1,3-Dichloropropylene	< 10	ug/l
0V19	Ethylbenzene	< 10	ug/l



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NUS PROJECT NO: 000000
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REPORT DATE: 12/28/83

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DATE RECEIVED: 12/06/83

SAMPLE IDENTIFICATION	NUS SAMPLE NO	RESULTS	UNITS
OV20 Methyl Bromide		< 10	ug/l
OV21 Methyl Chloride		< 10	ug/l
OV22 Methylene Chloride		< 10	ug/l
OV23 1,1,2,2-Tetrachloroethane		< 10	ug/l
OV24 Tetrachloroethylene(Perchloro)		< 10	ug/l
OV25 Toluene		< 10	ug/l
OV26 1,2-Trans-Dichloroethylene		< 10	ug/l
OV27 1,1,1-Trichloroethane		< 10	ug/l
OV28 1,1,2-Trichloroethane		< 10	ug/l
OV29 Trichloroethylene		< 10	ug/l
OV31 Vinyl chloride		< 10	ug/l
0120 ACIDS - PP IN WATER			
OA01 2-Chlorophenol		< 10	ug/l
OA02 2,4-Dichlorophenol		< 10	ug/l
OA03 2,4-Dimethylphenol		< 10	ug/l
OA04 4,6-Dinitro-o-cresol		< 10	ug/l
OA05 2,4-Dinitrophenol		< 10	ug/l
OA06 2-Nitrophenol		< 10	ug/l
OA07 4-Nitrophenol		< 10	ug/l
OA08 p-Chloro-m-cresol		< 10	ug/l
OA09 Pentachlorophenol		< 10	ug/l
OA10 Phenol		< 10	ug/l
OA11 2,4,6-Trichlorophenol		< 10	ug/l
OE30 Acid Extraction-Water			
0130 BASE NEUTRALS - PP IN WATER			
OB01 Acenaphthene		< 10	ug/l
OB02 Acenaphthylene		< 10	ug/l
OB03 Anthracene		< 10	ug/l
OB04 Benzdine		< 10	ug/l
OB05 Benzo(a)Anthracene		< 10	ug/l
OB06 Benzo(a)Pyrene		< 10	ug/l
OB07 3,4-Benzofluoranthene		< 10	ug/l
OB08 Benzo(ghi)Perylene		< 10	ug/l
OB09 Benzo(k)Fluoranthene		< 10	ug/l



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SAMPLE IDENTIFICATION	NUS SAMPLE NO	RESULTS	UNITS
OB10 Bis(2-Chloroethoxy)Methane		< 10	ug/l
OB11 Bis(2-Chloroethyl)Ether		< 10	ug/l
OB12 Bis(2-Chloroisopropyl)Ether		< 10	ug/l
OB13 Bis(2-Ethylhexyl)Phthalate		< 10	ug/l
OB14 4-Bromophenyl Phenyl Ether		< 10	ug/l
OB15 Butyl Benzyl Phthalate		< 10	ug/l
OB16 2-Chloronaphthalene		< 10	ug/l
OB17 4-Chlorophenyl Phenyl Ether		< 10	ug/l
OB18 Chrysene		< 10	ug/l
OB19 Dibenzo(a,h)Anthracene		< 10	ug/l
OB20 1,2-Dichlorobenzene		< 10	ug/l
OB21 1,3-Dichlorobenzene		< 10	ug/l
OB22 1,4-Dichlorobenzene		< 10	ug/l
OB23 3,3'-Dichlorobenzidine		< 10	ug/l
OB24 Diethyl Phthalate		< 10	ug/l
OB25 Dimethyl Phthalate		< 10	ug/l
OB26 Di-N-Butyl Phthalate		< 10	ug/l
OB27 2,4-Dinitrotoluene		< 10	ug/l
OB28 2,6-Dinitrotoluene		< 10	ug/l
OB29 Di-N-Octyl Phthalate		< 10	ug/l
OB30 1,2-Diphenylhydrazine(Azobz)		< 10	ug/l
OB31 Fluoranthene		< 10	ug/l
OB32 Fluorene		< 10	ug/l
OB33 Hexachlorobenzene		< 10	ug/l
OB34 Hexachlorobutadiene		< 10	ug/l
OB35 Hexachloro-cyclopentadiene		< 10	ug/l
OB36 Hexachloroethane		< 10	ug/l
OB37 Indeno(1,2,3 cd)Pyrene		< 10	ug/l
OB38 Isophorone		< 10	ug/l
OB39 Naphthalene		< 10	ug/l
OB40 Nitrobenzene		< 10	ug/l
OB41 N-Nitrosodimethylamine		< 10	ug/l
OB42 N-Nitrosodi-N-Propylamine		< 10	ug/l
OB43 N-Nitrosodiphenylamine		< 10	ug/l





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SAMPLE IDENTIFICATION	NUS SAMPLE NO	RESULTS	UNITS
OB44 Phenanthrene		< 10	ug/l
OB45 Pyrene		< 10	ug/l
OB46 1,2,4-Trichlorobenzene		< 10	ug/l
OE25 Base Neutral Extraction-Water			
OG36 GC/MS Additional Identification			N/A
W310 RCRA GROUNDWATER-CONTAMINATION			
W100 Carbon, organic (C)		3	mg/l
W315 Halogens, Total Organic (TOX)		44	ug/l
W490 pH		7.1	
W700 Specific Conductance @ 25 C		1,900	umhos/cm

22 (DENKA)

12/05

23120220

Q110 VOLATILES-PP IN WATER

OV01 Acrolein	< 100	ug/l
OV02 Acrylonitrile	< 100	ug/l
OV03 Benzene	< 10	ug/l
OV05 Bromoform	< 10	ug/l
OV06 Carbon Tetrachloride	< 10	ug/l
OV07 Chlorobenzene	< 10	ug/l
OV08 Chlorodibromomethane	< 10	ug/l
OV09 Chloroethane	< 10	ug/l
OV10 2-Chloroethylvinyl Ether	< 10	ug/l
OV11 Chloroform	< 10	ug/l
OV12 Dichlorobromomethane	< 10	ug/l
OV14 1,1-Dichloroethane	< 10	ug/l
OV15 1,2-Dichloroethane	< 10	ug/l
OV16 1,1-Dichloroethylene	< 10	ug/l
OV17 1,2-Dichloropropane	< 10	ug/l
OV18 1,3-Dichloropropylene	< 10	ug/l
OV19 Ethylbenzene	< 10	ug/l
OV20 Methyl Bromide	< 10	ug/l
OV21 Methyl Chloride	< 10	ug/l
OV22 Methylene Chloride	< 10	ug/l
OV23 1,1,2,2-Tetrachloroethane	< 10	ug/l

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LAB ANALYSIS REPORT

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NUS PROJECT NO: 000000
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REPORT DATE: 12/28/83

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DATE RECEIVED: 12/06/83

SAMPLE IDENTIFICATION	NUS SAMPLE NO	RESULTS	UNITS
OV24 Tetrachloroethylene(Perchloro)		< 10	ug/l
OV25 Toluene		< 10	ug/l
OV26 1,2-Trans-Dichloroethylene		< 10	ug/l
OV27 1,1,1-Trichloroethane		< 10	ug/l
OV28 1,1,2-Trichloroethane		< 10	ug/l
OV29 Trichloroethylene		< 10	ug/l
OV31 Vinyl chloride		< 10	ug/l
0120 ACIDS - PP IN WATER			
OA01 2-Chlorophenol		< 10	ug/l
OA02 2,4-Dichlorophenol		< 10	ug/l
OA03 2,4-Dimethylphenol		< 10	ug/l
OA04 4,6-Dinitro-o-cresol		< 10	ug/l
OA05 2,4-Dinitrophenol		< 10	ug/l
OA06 2-Nitrophenol		< 10	ug/l
OA07 4-Nitrophenol		< 10	ug/l
OA08 p-Chloro-m-cresol		< 10	ug/l
OA09 Pentachlorophenol		< 10	ug/l
OA10 Phenol		< 10	ug/l
OA11 2,4,6-Trichlorophenol		< 10	ug/l
OE30 Acid Extraction-Water			
0130 BASE NEUTRALS - PP IN WATER			
OB01 Acenaphthene		< 10	ug/l
OB02 Acenaphthylene		< 10	ug/l
OB03 Anthracene		< 10	ug/l
OB04 Benzidine		< 10	ug/l
OB05 Benzo(a)Anthracene		< 10	ug/l
OB06 Benzo(a)Pyrene		< 10	ug/l
OB07 3,4-Benzofluoranthene		< 10	ug/l
OB08 Benzo(ghi)Perylene		< 10	ug/l
OB09 Benzo(k)Fluoranthene		< 10	ug/l
OB10 Bis(2-Chloroethoxy)Methane		< 10	ug/l
OB11 Bis(2-Chloroethyl)Ether		< 10	ug/l
OB12 Bis(2-Chloroisopropyl)Ether		< 10	ug/l
OB13 Bis(2-Ethylhexyl)Phthalate		81	ug/l



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SAMPLE IDENTIFICATION	NUS SAMPLE NO	RESULTS	UNITS
OB14 4-Bromophenyl Phenyl Ether		< 10	ug/l
OB15 Butyl Benzyl Phthalate		< 10	ug/l
OB16 2-Chloronaphthalene		< 10	ug/l
OB17 4-Chlorophenyl Phenyl Ether		< 10	ug/l
OB18 Chrysene		< 10	ug/l
OB19 Dibenzo(a,h)Anthracene		< 10	ug/l
OB20 1,2-Dichlorobenzene		< 10	ug/l
OB21 1,3-Dichlorobenzene		< 10	ug/l
OB22 1,4-Dichlorobenzene		< 10	ug/l
OB23 3,3'-Dichlorobenzidine		< 10	ug/l
OB24 Diethyl Phthalate		< 10	ug/l
OB25 Dimethyl Phthalate		< 10	ug/l
OB26 Di-N-Butyl Phthalate		< 10	ug/l
OB27 2,4-Dinitrotoluene		< 10	ug/l
OB28 2,6-Dinitrotoluene		< 10	ug/l
OB29 Di-N-Octyl Phthalate		< 10	ug/l
OB30 1,2-Diphenylhydrazine(Azobz)		< 10	ug/l
OB31 Fluoranthene		< 10	ug/l
OB32 Fluorene		< 10	ug/l
OB33 Hexachlorobenzene		< 10	ug/l
OB34 Hexachlorobutadiene		< 10	ug/l
OB35 Hexachloro-cyclopentadiene		< 10	ug/l
OB36 Hexachloroethane		< 10	ug/l
OB37 Indeno(1,2,3 cd)Pyrene		< 10	ug/l
OB38 Isophorone		< 10	ug/l
OB39 Naphthalene		< 10	ug/l
OB40 Nitrobenzene		< 10	ug/l
OB41 N-Nitrosodimethylamine		< 10	ug/l
OB42 N-Nitrosodi-N-Propylamine		< 10	ug/l
OB43 N-Nitrosodiphenylamine		< 10	ug/l
OB44 Phenanthrene		< 10	ug/l
OB45 Pyrene		< 10	ug/l
OB46 1,2,4-Trichlorobenzene		< 10	ug/l
OE25 Base Neutral Extraction-Water			



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NUS PROJECT NO: 000000
NUS CLIENT NO: 721501

REPORT DATE: 12/28/83

ATTENTION: WAYNE S. POLLARD

DATE RECEIVED: 12/06/83

SAMPLE IDENTIFICATION

NUS SAMPLE NO

RESULTS

UNITS

0636	GC/MS Additional Identification		N/A
W310	RCRA GROUNDWATER-CONTAMINATION		
W100	Carbon, organic (C)	3	ug/l
W315	Halogens, Total Organic (TOX)	27	ug/l
W490	pH	7.3	
W700	Specific Conductance @ 25 C	1,300	umhos/cm

COMMENTS:

Reviewed and Approved by: JWB

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LAB ANALYSIS REPORT

CLIENT NAME: GEO-ASSOCIATES
ADDRESS: 10701 CORPORATE DRIVE, SUIT 282
STAFFORD, TX 77477

NUS PROJECT NO: 000000
NUS CLIENT NO: 721501

REPORT DATE: 03/27/84

ATTENTION: WAYNE S. POLLARD

DATE RECEIVED: 03/09/84

SAMPLE IDENTIFICATION		NUS SAMPLE NO	RESULTS	UNITS
W700 Specific Conductance @ 25C			4500	umhos/cm
WELL 21 (DENKA)	03/09	24030511		
W310 RCRA GROUNDWATER-CONTAMINATION				
W100 Carbon, Total Organic (TOC)			3	mg/l
W315 Halogens, Total Organic (TOX)			96	ug/l
W490 pH			7.0	
W700 Specific Conductance @ 25C			1800	umhos/cm
WELL 22 (DENKA)	03/09	24030512		
W310 RCRA GROUNDWATER-CONTAMINATION				
W100 Carbon, Total Organic (TOC)			2	mg/l
W315 Halogens, Total Organic (TOX)			23	ug/l
W490 pH			7.3	
W700 Specific Conductance @ 25C			1100	umhos/cm

COMMENTS:

Reviewed and Approved by: DM

PAGE NO: 2



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LAB ANALYSIS REPORT

CLIENT NAME: GEO-ASSOCIATES
ADDRESS: 10701 CORPORATE DRIVE, SUIT 282
STAFFORD, TX 77477

NUS PROJECT NO: 000000
NUS CLIENT NO: 721501

REPORT DATE: 03/27/84

ATTENTION: WAYNE S. POLLARD

DATE RECEIVED: 03/09/84

SAMPLE IDENTIFICATION		NUS SAMPLE NO	RESULTS	UNITS
WELL 1 (DENKA)	03/09	24030506		
W310 RCRA GROUNDWATER-CONTAMINATION				
W100 Carbon, Total Organic (TOC)			20	ng/l
W315 Halogens, Total Organic (TOX)			260	ug/l
W490 pH			6.5	
W700 Specific Conductance @ 25C			6200	umhos/cm
WELL 2 (DENKA)	03/09	24030507		
W310 RCRA GROUNDWATER-CONTAMINATION				
W100 Carbon, Total Organic (TOC)			35	ng/l
W315 Halogens, Total Organic (TOX)			770	ug/l
W490 pH			6.3	
W700 Specific Conductance @ 25C			8400	umhos/cm
WELL 3 (DENKA)	03/09	24030508		
W310 RCRA GROUNDWATER-CONTAMINATION				
W100 Carbon, Total Organic (TOC)			9	ng/l
W315 Halogens, Total Organic (TOX)			230	ug/l
W490 pH			6.5	
W700 Specific Conductance @ 25C			2800	umhos/cm
WELL #4 (DENKA)	03/09	24030509		
W310 RCRA GROUNDWATER-CONTAMINATION				
W100 Carbon, Total Organic (TOC)			3	ng/l
W315 Halogens, Total Organic (TOX)			580	ug/l
W490 pH			6.9	
W700 Specific Conductance @ 25C			1200	umhos/cm
WELL 5A (DENKA)	03/09	24030510		
W310 RCRA GROUNDWATER-CONTAMINATION				
W100 Carbon, Total Organic (TOC)			11	ng/l
W315 Halogens, Total Organic (TOX)			260	ug/l
W490 pH			6.4	